

Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

GWP 4111-22-00

February 11, 2026

Prepared for:
Ministry of Transportation
Eastern Region
1355 John Counter Boulevard
Postal Bag 4000
Kingston, ON K7L 5A3

Prepared by:
Stantec Consulting Ltd.
300-1330 Clyde Avenue
Ottawa, ON K2C 3G4

Project/File:
165001328



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

Limitations and Sign-off

February 11, 2026

Limitations and Sign-off

The conclusions in the Report titled Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from the Ministry of Transportation (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

Prepared by _____
(signature)

Amy Groves, B.Sc.
Terrestrial Ecologist

Reviewed by _____
(signature)

Melissa Straus, M.Sc.
Senior Ecologist

Approved by _____
(signature)

Debbie Giesbrecht, M.Sc.
Senior Ecologist



Table of Contents

1	Introduction.....	1
2	Methods.....	3
2.1	Background Review.....	3
2.1.1	Species at Risk	4
2.1.2	Species of Conservation Concern	4
2.2	Field Data Collection	5
2.2.1	Vegetation Community Assessment.....	6
2.2.2	Breeding Bird Surveys.....	6
2.2.3	Migratory Bird Nest Surveys.....	7
2.2.4	Significant Wildlife Habitat.....	8
2.2.5	Habitat Assessment for Species at Risk.....	8
3	Terrestrial Ecosystems Existing Conditions.....	10
3.1	Background Data.....	10
3.1.1	Physical Geography and Landscape Ecology	10
3.1.2	Significant Natural Areas	10
3.1.3	Species at Risk and Species of Conservation Concern	11
3.2	Field Investigations.....	15
3.2.1	Vegetation Communities	15
3.2.2	Vascular Plant Species.....	17
3.2.3	Breeding Bird Surveys.....	18
3.2.4	Migratory Bird Nest Surveys.....	18
3.2.5	Incidental Wildlife	18
3.2.6	Significant Wildlife Habitat.....	19
3.2.7	Habitat Assessment for Species at Risk.....	29
3.2.8	Gray Ratsnake Habitat Assessment.....	29
3.3	Summary of Natural Heritage Features	29
4	Description of Work.....	34
5	Impact Assessment.....	35
5.1	Loss of Terrestrial Habitat	35
5.2	Potential Disturbance to Wetlands.....	37
5.3	Potential Interference with Nesting Birds.....	38
5.4	Significant Wildlife Habitat	38
5.5	Potential Disturbance to Species at Risk and Species of Conservation Concern	39
	39	
5.5.1	Species at Risk	39



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

Table of Contents

February 11, 2026

5.5.2	Species of Conservation Concern	40
6	Environmental Protection Measures	42
6.1	Ontario Provincial Standard Specifications.....	42
6.2	Standard Environmental Protection Measures	43
6.2.1	Erosion and Sedimentation Control.....	43
6.2.2	Vegetation Removal	44
6.2.3	Protection of Migratory Birds	45
6.2.4	Wildlife Protection.....	46
6.2.5	Invasive Species Management	46
6.3	Site-Specific Protection Measures.....	47
6.3.1	Wetlands	47
6.3.2	Turtle SAR (Blanding’s Turtle) and SOCC (Snapping Turtle, Midland Painted Turtle).....	47
6.3.3	Gray Ratsnake	49
6.3.4	Bats 51	
6.3.5	Eastern Milksnake and Eastern Ribbonsnake.....	52
6.3.6	Monarch	53
7	Consideration of the Endangered Species Act, 2007	54
8	Summary	55
9	References	56

List of Tables

Table 1	Background Review of SAR and SOCC for the Study Area.....	12
Table 2	Vegetation communities present in the Study Area	15
Table 3	Significant Wildlife Habitat Assessment for the Study Area	21
Table 4	Summary of Natural Heritage Features for the Study Area.....	30
Table 5	Terrestrial Habitat Impacted within the Study Area.....	36

List of Figures

Figure 1	Study Area Location	1
Figure 2	Background Review.....	1
Figure 3	Terrestrial Field Investigation.....	2



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

Table of Contents

February 11, 2026

List of Appendices

Appendix A Figures

Appendix B Agency Correspondence

Appendix C Vascular Plant List

Appendix D SAR and SOCC Assessment



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

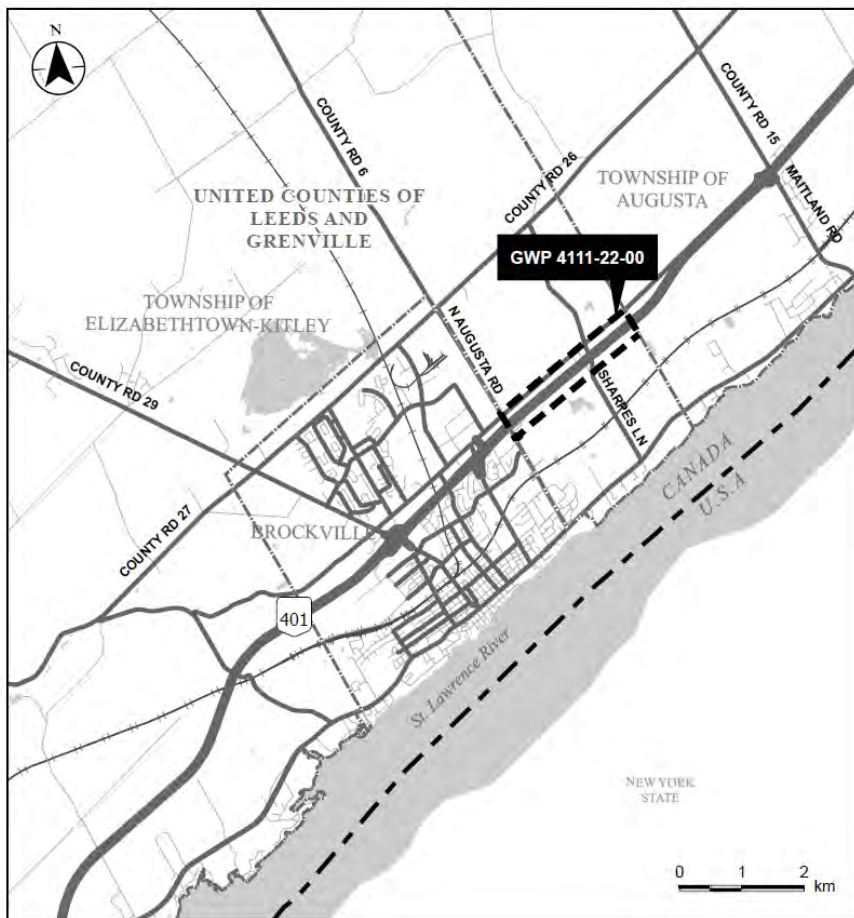
1 Introduction

February 11, 2026

1 Introduction

The Ontario Ministry of Transportation (MTO) has retained Stantec Consulting Ltd. (Stantec) to undertake a Preliminary Design and Class Environmental Assessment (Class EA) Study on Highway 401 for the replacement and rehabilitation of one bridge, and one culvert and to identify the future Highway 401 footprint for an interim six lanes and ultimate eight lanes. This Group Work Project (GWP) 4111-22-00 Study Area is from 0.75 km east of North Augusta Road to 3.3 km west of Maitland Road (total of approximately 2.6 km), in the Township of Elizabethtown-Kitley, east of Brockville, in the United Counties of Leeds and Grenville, as shown on the key map (Figure 1).

Figure 1 Study Area Location



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

1 Introduction

February 11, 2026

The project is being completed following the MTO *Class Environmental Assessment (EA) for Provincial Transportation Facilities and Municipal Expressways (2024)* for a Group 'B' undertaking. Group 'B' projects are considered major improvements to existing transport facilities. This project will identify a Recommended Plan that addresses current and future transportation needs in the area as part of MTO's ongoing review of safety and operational needs for the provincial highway network.

This *Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report* was completed in accordance with Section 3.2 – Terrestrial Ecosystems of the *Environmental Reference for Highway Design* (MTO 2013) and Section 4 – Wildlife and Wildlife Management of the *Environmental Reference for Contract Preparation* (MTO 2007).

The purpose of this report is to describe existing vegetation communities, wildlife, and wildlife habitat present within the Study Area and to provide an impact assessment, mitigation recommendations, and authorization considerations for the identified natural heritage features.

For this report, the Study Area is the existing Highway 401 right-of-way (ROW) within project limits, plus 120 meters (m) as shown on Figure 3, Appendix A.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

2 Methods

February 11, 2026

2 Methods

2.1 Background Review

The Study Area is located within the Kemptville-Kingston District of the Ministry of Natural Resources (MNR) and the St. Lawrence River Watershed of the Cataraqui Region Conservation Authority (CRCA). An information request letter was sent to the Kemptville-Kingston District MNR on June 13, 2024. A response was provided by Joffre Côté, Management Biologist on June 18, 2024. Agency correspondence is provided in Appendix B.

The following background documents and information sources were reviewed to identify natural heritage features within or near the Study Area, including designated natural areas, other natural features, and records of Species at Risk (SAR) and Species of Conservation Concern (SOCC):

- Natural Heritage Information Centre (NHIC) database (MNR 2024a)
- MNR Land Information Ontario (LIO) digital mapping of natural heritage features (MNR 2024b)
- United Counties of Leeds and Grenville Official Plan (United Counties of Leeds and Grenville 2022)
- CRCA Regulatory Extent Screening Map (CRCA 2024)
- Species at Risk in Ontario (SARO) List (MECP 2025)
- *Species at Risk Act* (SARA), Schedule 1 (Government of Canada 2025)
- Ontario Reptile and Amphibian Atlas (Ontario Nature 2020)
- 2nd Ontario Breeding Bird Atlas (Cadman *et al.* 2007)
- Atlas of Mammals of Ontario (Dobbyn 1994)
- *Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report. Highway 401 Planning Study, Brockville, GWP 4003-19-00* (Stantec Consulting 2023)



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

2 Methods

February 11, 2026

- *The Right to Roam: A Strategy to Reconnect a Continental Wildlife Pathway in the Frontenac Arch* (Black, Danby and Urquhart 2023)

The results of the background review were used to identify potential SAR and SOCC that may be present in the Study Area and to guide field investigations. These resources generally do not provide the exact locations of species occurrence, with accuracy ranging from 1 km² (NHIC) to 10 km² (wildlife atlases). As such, they are used as an indicator of potential occurrence in the Study Area.

2.1.1 Species at Risk

For this assessment, SAR are Threatened or Endangered species on the SARO list (Ontario Regulation 230/08) (MECP 2024). The Ontario *Endangered Species Act, 2007* (ESA) prohibits harm to Threatened or Endangered species, and damage or disturbance to their habitat. The ESA applies on all private and Crown owned lands in Ontario.

On June 5, 2025, the *Protect Ontario by Unleashing our Economy Act, 2025* (Bill 5) received Royal Assent and as a result, the ESA was amended and will remain in effect until such time as the *Species Conservation Act, 2025* (SCA) is proclaimed. Draft legislative and regulatory amendments to enable the SCA were posted on September 26, 2025, and proposes to use a “registration-first approach” where specific exemption conditions are met. Once in effect, the SCA would replace the ESA.

The potential for SAR to be present in the Study Area was evaluated based on the review of background information, agency consultation, and field investigations.

2.1.2 Species of Conservation Concern

SOCC are considered at several levels, including globally, nationally, and provincially. For this report, SOCC includes species that are provincially rare (with a Provincial S-rank of S1 to S3), listed as Special Concern on the SARO list, or listed on Schedule 1 of SARA but not included on the SARO list.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

2 Methods

February 11, 2026

Provincial ranks (S-ranks) are used by the NHIC to set protection priorities for rare species and vegetation communities, and are defined as follows:

- **S1** - Critically imperiled; usually fewer than 5 occurrences
- **S2** - Imperiled; usually fewer than 20 occurrences
- **S3** - Vulnerable; usually fewer than 100 occurrences
- **S4** - Apparently secure; uncommon but not rare, usually more than 100 occurrences
- **S5** - Secure; common, widespread, and abundant
- **?** - S-rank followed by a “?” indicates the rank is uncertain

2.2 Field Data Collection

Field investigations were completed in the Study Area from June 2-7, 2024. Surveys included:

- vegetation community classification (i.e., Ecological Land Classification)
- vegetation species inventory including documentation and delineation of Phragmites and other noxious weeds
- wildlife and SAR habitat assessments (including targeted Gray Ratsnake (*Pantherophis spiloides*) habitat assessments)
- migratory bird nest surveys and breeding bird surveys
- incidental wildlife observations

Due to property access restrictions, field investigations were performed from within the highway ROW.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

2 Methods

February 11, 2026

2.2.1 Vegetation Community Assessment

Vegetation community mapping for the Study Area was completed according to the Ecological Land Classification (ELC) system for southern Ontario (Lee et al. 1998) and labelled according to the updated ELC Catalogue (2008). Vegetation communities were delineated on aerial photographs and verified in the field. Provincial significance of vegetation communities was based on the rankings assigned by the NHIC (MNR 2024c).

A list of plant species identified in the ROW was compiled. The nomenclature and provincial status of plant species was based on a vascular plant species list available from the NHIC (MNR 2024c). Identification of potentially sensitive native plant species was based on their assigned coefficient of conservatism (CC) value, as determined by Oldham et al. (1995). This CC value, ranging from 0 (low) to 10 (high), is based on a species' tolerance of disturbance and fidelity to a specific natural habitat. Species with a CC value of 8, 9, or 10 generally exhibit a high degree of fidelity to a narrow range of habitat parameters.

If observed, *Phragmites* colonies and other noxious weeds were documented, and areas were delineated using ArcGIS Field Maps.

2.2.2 Breeding Bird Surveys

Roadside breeding bird surveys were completed on June 3, 2024. Two survey stations were selected to target habitat that was considered suitable for bird SAR including open grassland (i.e., meadow, pasture, hayfield) habitat, forest habitat, and thicket habitat within the Study Area (Figure 3, Appendix A). Due to the small size of the study area and number of constructed areas, only two stations were selected.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

2 Methods

February 11, 2026

Surveys started at sunrise and concluded by 9:00 am for grassland habitat and 10:00 am for forest and wetland habitat (MNR 2012, OBBA 2023). One survey was completed at each location and all birds observed (visually and aurally) during the 10-minute point count were recorded, along with their approximate location. Evidence of breeding and behavior (e.g., singing) was also recorded. Incidental bird observations were recorded before and after the point count. Weather condition parameters (e.g. precipitation, wind and visibility) were within the acceptable range throughout the survey periods.

2.2.3 Migratory Bird Nest Surveys

Migratory birds and their nests are protected under the *Migratory Bird Convention Act, 1994* (MBCA), and are afforded protection on all lands. The Butlers Creek culvert, the Sharpes Lane bridge over Highway 401 and three additional culverts within the Study Area were searched for the presence of migratory bird nests. These structures were searched to determine their potential to provide nesting habitat for Barn Swallow (*Hirundo rustica*), Cliff Swallow (*Petrochelidon pyrrhonota*), American Robin (*Turdus migratorius*) and Eastern Phoebe (*Sayornis phoebe*), all of which are species that are protected under the MBCA.

Under the Migratory Bird Regulations (MBR 2022) of the MBCA, nests for 18 bird species (seven of which occur in Ontario) receive year-round protection for a prescribed length of time ranging from 24-36 months (on Schedule 1 of the MBR 2022). Pileated Woodpecker (*Dryocopus pileatus*) was the only species that was identified as potentially present in the Study Area on the list of birds receiving year-round protection. Trees in areas of proposed impact were surveyed for evidence of Pileated Woodpecker nests, roosts, or foraging cavities. Stantec biologists noted the size and shape of cavities, if present, and photographs were taken.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

2 Methods

February 11, 2026

Pileated Woodpecker make three types of cavities: nesting, roosting, and feeding. Only the nesting cavity is protected and can typically be identified by size. In general nesting cavities are approximately 9 cm by 12 cm in size, round, or teardrop in shape, with a smooth edge, 0.75 m deep, in a tree with heart rot but solid exterior. Additionally, there is usually only one nesting cavity per tree (i.e., if multiple cavities are observed in a tree, they are likely roosting or feeding cavities) (Government of Canada 2022).

2.2.4 Significant Wildlife Habitat

The *MNR's Significant Wildlife Habitat Technical Guide* (SWHTG) (MNR 2000) and the *SWH Criteria Schedules for Ecoregion 6E* (MNR 2015) describe significant wildlife habitat (SWH) in four categories:

1. Seasonal concentrations of wildlife such as deer wintering areas
2. Rare vegetation communities or specialized habitat for wildlife such as vernal pools or snake hibernacula
3. Habitat for SOCC
4. Wildlife movement corridors

Field assessments focused on identifying candidate SWH according to the SWHTG and the *SWH Criteria Schedules for Ecoregion 6E* (MNR 2015). Candidate SWH encountered was documented.

2.2.5 Habitat Assessment for Species at Risk

As described in Section 2.1.1, a list of species with potential to occur in the Study Area was obtained through a background review. Habitat assessments were conducted in the field to determine the potential for SAR and their habitat to occur in the Study Area.

Field investigations were supplemented with data obtained through aerial photography interpretation and background information on species' habitat preferences. SAR with suitable habitat and at least one recent record (within the last 20 years) with an overlapping range in the Study Area were considered to have a reasonable probability



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

2 Methods

February 11, 2026

of occurring. Species with no preferred habitat in the Study Area and/or recent records are assumed to be absent.

2.2.5.1 Gray Ratsnake Habitat Assessment

The Frontenac axis population of Gray Ratsnake is listed as Threatened under the ESA and receives habitat protection. Areas that are within 1000 m of a known population are designated as Regulated Habitat, which are sites that are suitable for the species to carry out its life processes including nesting, hibernation, and communal shedding and basking. Regulated Habitat for Gray Ratsnake is present within the Study Area (Kraus et al. 2010 and MECP 2021).

As a semi-arboreal species, the Gray Ratsnake is typically associated with a variety of woodland and scrub habitats across its range (COSEWIC 2018). The Frontenac Axis population requires a patchwork of forested and open habitat with a high edge-to-area ratio but are mostly associated with deciduous forests. Communal hibernacula typically are located on rocky, south-facing slopes that have subterranean properties. Nesting sites (i.e., egg-laying) are in rotten interior cavities of large deciduous trees and stumps or compost piles (Kraus et al. 2010).

Stantec biologists surveyed the Highway 401 ROW and proposed impact areas for edge habitats, hibernacula, and candidate nesting features. If present, biologists documented the location, size, and characteristics of the feature, and photographs were taken.



3 Terrestrial Ecosystems Existing Conditions

3.1 Background Data

3.1.1 Physical Geography and Landscape Ecology

The Study Area is within the Middle Ottawa Section of the Great Lakes/St. Lawrence Forest Region (Rowe 1972). Forest communities in the Great Lakes/St. Lawrence Forest Region are dominated by hardwood trees such as maple, oak, birch, and basswood but also commonly include white pine, red pine, hemlock, and white cedar (Rowe 1972).

The Study Area is also within the Smith Falls Ecodistrict (6E-11) of Ecoregion 6E (Lake Simcoe – Rideau) (Henson and Brodribb 2005). Ecodistrict 6E-11 is characterized by shallow calcareous morainal materials with extensive organic deposits across the landscape. Forested habitat is the dominant land cover with deciduous, mixed, and coniferous forest occupying 56% of the land base. Pasture and cropland occupy 35% of the land base (Henson and Brodribb 2005).

3.1.2 Significant Natural Areas

Significant natural areas include Provincially Significant Wetlands (PSWs), Areas of Natural and Scientific Interest (ANSIs), Provincial Parks, Conservation Reserves, or known areas of SWH that may overlap with the Study Area.

The following natural areas are present within or in proximity to the Study Area (Figure 2, Appendix A):

- Frontenac Arch World Biosphere Reserve (Significant Ecological Area)
 - Situated on the Canadian shield, it is characterized by rolling topography; frequent outcrops of bedrock; deciduous, coniferous, and mixed forests; numerous lakes, rivers, and wetlands (Black et al. 2023)
- Watercourses (Butlers Creek and unnamed tributary)



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

- Unevaluated wetlands
- Wildlife corridors and linkages
 - Algonquin to Adirondacks (A2A) Region: a unique and diverse region that connects Algonquin Park to Adirondack Park through the Frontenac Arch Biosphere and surrounding lands. It hosts a diversity of flora and fauna and is classified as a linkage features due to its large intact forests and wetland systems, which provides opportunity for wildlife movement across the Great Lakes-St. Lawrence system (A2A 2024). This Region is separate from the Animal Movement Corridors mentioned under Significant Wildlife Habitat in Section 3.2.6.

3.1.3 Species at Risk and Species of Conservation Concern

There were four records of SAR and SOCC in the NHIC database that may occur within the Study Area that included three birds and one plant species (Wood Thrush, Eastern Wood-Pewee, Butternut, and Eastern Meadowlark). An additional 19 species were identified as potentially occurring based on a review of wildlife atlases and other background data sources.

Results of Stantec's background data review is provided in Table 1.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

Table 1 Background Review of SAR and SOCC for the Study Area

Type	Common Name	Scientific Name	Source	SARO List	SARA Schedule 1	S-Rank
Species at Risk	Blanding's Turtle	<i>Emydoidea blandingii</i>	ORRA, iNaturalist	THR	END	S3
	Gray Ratsnake	<i>Pantherophis spiloides</i>	COSSARO, 2020	THR	THR	S3
	Chimney Swift	<i>Chaetura pelagica</i>	OBBA	THR	THR	S3B
	Eastern Meadowlark	<i>Sturnella magna</i>	NHIC, OBBA	THR	THR	S4B
	Little Brown Myotis	<i>Myotis lucifugus</i>	AMO	END	END	S3
	Northern Myotis	<i>Myotis septentrionalis</i>	AMO	END	END	S3
	Tri-colored Bat	<i>Perimyotis subflavus</i>	AMO	END	END	S3?
	Eastern Small-footed Myotis	<i>Myotis leibii</i>	AMO	END	-	S2S3
	Hoary Bat	<i>Lasiurus cinereus</i>	S4	END	-	AMO
	Silver-haired Bat	<i>Lasionycteris noctivagans</i>	S4	END	-	AMO
	Eastern Red Bat	<i>Lasiurus borealis</i>	S4	-END	-	AMO
	Butternut	<i>Juglans cinerea</i>	NHIC	END	END	S2
	Black Ash	<i>Fraxinus nigra</i>	COSSARO, 2020	END	THR	S4



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

Type	Common Name	Scientific Name	Source	SARO List	SARA Schedule 1	S-Rank
Species of Conservation Concern	Barn Swallow	<i>Hirundo rustica</i>	OBBA	SC	THR	S4B
	Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	OBBA	-	-	S3B
	Eastern Wood-Pewee	<i>Contopus virens</i>	NHIC, OBBA	SC	SC	S4B
	Tufted Titmouse	<i>Baeolophus bicolor</i>	OBBA	-	-	S3
	Wood Thrush	<i>Hylocichla mustelina</i>	NHIC, OBBA	SC	THR	S4B
	Snapping Turtle	<i>Chelydra serpentina</i>	ORAA, iNaturalist	SC	SC	S4
	Midland Painted Turtle	<i>Chrysemys picta marginata</i>	iNaturalist	NAR	SC	S3
	Eastern Milksnake	<i>Lampropeltis triangulum</i>	ORAA	-	SC	S4
	Eastern Ribbonsnake	<i>Thamnophis sauritus</i>	ORAA	SC	-	S4
	Monarch	<i>Danaus plexippus</i>	OBA	SC	END	S4B, S2N

Notes:

AMO: Atlas of the Mammals of Ontario

OBA: Ontario Butterfly Atlas

OBBA: Ontario Breeding Bird Atlas

ORAA: Ontario Reptile and Amphibian Atlas

eBird: eBird Online Database



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

NHIC:

S1: Critically Imperiled—Critically imperiled in the province (often 5 or fewer occurrences)

S2: Imperiled— Imperiled in the province, few populations (often 20 or fewer)

S3: Vulnerable—Vulnerable in the province, relatively few populations (often 80 or fewer)

S4: Apparently Secure—Uncommon but not rare

S?: Rank Uncertain

SH: Possibly Extirpated (Historical)

S#B: Breeding status rank

S#N: Non-Breeding status rank

END: Endangered

THR: Threatened

SC: Special Concern

NAR: Not at Risk

-: Not Listed



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

3.2 Field Investigations

3.2.1 Vegetation Communities

The Study Area is primarily comprised of a large contiguous deciduous forest along the south side (eastbound lanes) of Highway 401 and more fragmented deciduous forests with disturbed meadows and developed lands (e.g., residential and commercial areas) along the north side (westbound lanes) of Highway 401.

A list of vegetation communities present in the Study Area is provided in Table 2. Community mapping is provided in Figure 3, Appendix A. Vegetation communities observed were common and widespread throughout southern Ontario (MNR 2024c).

Table 2 Vegetation communities present in the Study Area

ELC Code	ELC Name
Meadow Communities	
ME	Meadow
MEMM3	Dry - Fresh Mixed Meadow Ecosite
MEMM3/M EMM4	Dry - Fresh Mixed Meadow Ecosite/ Fresh - Moist Mixed Meadow Ecosite
Thicket Communities	
THDM2	Dry - Fresh Deciduous Shrub Thicket Ecosite
THDM4	Dry - Fresh Deciduous Regeneration Thicket Ecosite
THDM5	Fresh - Moist Deciduous Thicket Ecosite
THDR1	Dry - Fresh Calcareous Bedrock Deciduous Thicket Ecosite
THMM1	Dry - Fresh Mixed Regeneration Thicket Ecosite
Woodland Communities	
WODM4	Dry - Fresh Deciduous Woodland Ecosite
WODM5	Fresh - Moist Deciduous Woodland Ecosite
WODM5-1	Fresh - Moist Poplar Deciduous Woodland Type



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

ELC Code	ELC Name
WODM5-1/THDM2	Fresh - Moist Poplar Deciduous Woodland Type/Dry - Fresh Deciduous Shrub Thicket Ecosite
Forest Communities	
FODM4	Dry – Fresh Upland Deciduous Forest Ecosite
FODM4/ FOCM6-3	Dry – Fresh Upland Deciduous Forest Ecosite/Dry - Fresh Scotch Pine Naturalized Coniferous Plantation Type
FODM5-11	Dry – Fresh Sugar Maple – Hardwood Deciduous Forest Type
FODM6-5	Fresh – Moist Sugar Maple – Hardwood Deciduous Forest Type
FODM7	Fresh – Moist Lowland Deciduous Forest Ecosite
FODM7-2	Fresh – Moist Green Ash - Hardwood Lowland Deciduous Forest Type
FODM7-9	Fresh - Moist Exotic Lowland Deciduous Forest Type
FODM8-1	Fresh – Moist Poplar Deciduous Forest Type
FODM8-1/ FOCM6	Fresh – Moist Poplar Deciduous Forest Type/Naturalized Coniferous Plantation
FOCM6/FO DM8-1	Naturalized Coniferous Plantation/Fresh – Moist Poplar Deciduous Forest Type
Wetland Communities	
MAMM1-2	Cattail Graminoid Mineral Meadow Marsh Type
SWDM2-2	Green Ash Mineral Deciduous Swamp Type
Agricultural Communities	
SAGM2	Orchard
TAGM1	Coniferous Plantation
TAGM3	Deciduous Plantation
TAGM5/ FODM11	Fencerow/Naturalized Deciduous Hedge-row Ecosite
Constructed Communities	
CGL	Green Lands
CVC	Commercial and Institutional



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

ELC Code	ELC Name
CVC_4	Extraction
CVI_1	Business Sector
CVR	Residential
CVR/CGL	Residential/Green Lands
CVR_1	Low Density Residential
CVR_3	Single Family Residential
CVR_4	Rural Property
CVR_4/ CVC_1	Rural Property/Business Sector
CVR_5	Trailer Park
CVS_2	Health
CVC_4/ME	Extraction/Meadow

3.2.2 Vascular Plant Species

The following is a floristic summary for the Study Area based on botanical assessments completed in 2024. A detailed list with scientific plant names and species statuses is provided in Appendix C.

- 97 species of vascular plants were recorded. This total includes taxa identified to species, subspecies (ssp.) and variation (var.) levels
- 60 of the 97 recorded species are native to Ontario and 37 are introduced species not native to Ontario
- 56 native species have a provincial rank of S5, indicating they are common with a secure population in Ontario
- 4 native species have a provincial rank of S4, indicating they are uncommon to common, but not rare in the province and populations are apparently secure
- no provincially rare species (i.e., S1-S3) were observed in the Study Area where access permitted
- no SAR observed (e.g., butternut or black ash) were observed in the Study Area where access permitted



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

- no highly sensitive native plant species with a high CC value of 8, 9 or 10 were observed in the Study Area where access permitted
- Phragmites colonies were not observed in the Study Area

3.2.3 Breeding Bird Surveys

A total of 12 species of birds were recorded during the breeding bird surveys. All species observed are ranked as S5 (common and secure in the province) or S4 (apparently secure in the province; uncommon but not rare).

Canada Goose was the most abundant species (182 individuals), followed by Song Sparrow (3 individuals), Red-eyed Vireo (2 individuals), and American Redstart (2 individuals).

All species were recorded to the best of the observer's abilities given the location of the point count locations and constraints associated with high levels of highway disturbance.

No species listed as SAR or SOCC were observed within the Study Area. See Figure 3, Appendix A for breeding bird survey locations in the Study Area.

3.2.4 Migratory Bird Nest Surveys

No nests of migratory birds were observed in the Study Area during field investigations in June 2024. However, migratory birds may nest in meadows and forested areas throughout the Study Area. Vegetation within the ROW may support migratory bird nests during the active nesting season (April 1 – August 31).

3.2.5 Incidental Wildlife

The following species were recorded incidentally during field observations; Raccoon (road mortality), Monarch, Eastern Gartersnake, and Green Frog.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

3.2.6 Significant Wildlife Habitat

The presence of the four categories of SWH (briefly described below) was assessed for the Study Area. A summary of the SWH assessment results are provided in Table 3.

Seasonal Concentration Areas

Seasonal concentration areas are those sites where large numbers of a species gather at one time of the year, or where several species congregate. Examples include deer yards, snake and bat hibernacula, waterfowl staging and molting areas, raptor roosts, bird nesting colonies, shorebird staging areas, and passerine migration stopover areas. Only the best examples of these concentration areas are usually designated as SWH.

Rare or Specialized Habitat

Rare or specialized habitats are two separate components of SWH. Rare habitats are those with vegetation communities that are considered rare in the province. Specialized habitats are microhabitats that are critical to some wildlife species. The SWHTG (MNR 2000) identifies habitats that could be considered specialized habitats, such as habitat for area-sensitive species, forests providing a high diversity of habitats, amphibian woodland breeding ponds, turtle nesting habitat, highly diverse sites, seeps, and springs. The largest and least fragmented habitats are the most likely to support the most significant populations of wildlife.

Habitat for Species of Conservation Concern

Habitat for SOCC includes habitat for those species that are not covered under the ESA including species ranked as special concern and provincially ranked as S1-S3. Data from field surveys were used to assess the potential for habitat of SOCC to occur within the Study Area. Habitat assessments for these species were completed through a combination of satellite photo interpretation and field investigations to determine whether suitable habitat may be present in the Study Area.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

Animal Movement Corridors

Migration corridors are areas that are traditionally used by wildlife to move from one habitat to another. This is usually in response to different seasonal habitat requirements. There are two types of animal movement corridors in Ecoregion 6E: amphibian and deer movement corridors. These corridors are identified after amphibian breeding habitat (woodlands) and/or deer wintering/yarding areas are confirmed. Amphibian breeding surveys were not completed for the project and are beyond the scope of this assessment.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

Table 3 Significant Wildlife Habitat Assessment for the Study Area

Type	Habitat Type (MNR 2015)	Habitat Description	Candidate SWH in Study Area?
Seasonal Concentration Areas	Bat hibernacula	Abandoned mine shafts, underground foundations, caves, and crevices.	Absent. Features were not observed during field investigations or identified during background data review.
	Deer wintering congregation areas and deer yards	Deer yards are mapped by MNR.	Absent: No deer yards are mapped by MNR in the Study Area (MNR 2024b).
	Colonially – nesting bird breeding habitat (bank and cliff)	Eroding banks, sandy hills, steep slopes, rock faces or piles. Cliff faces. Does not include disturbed soil areas such as berms, embankments, oil or aggregate stockpiles.	Absent. Features were not observed during field investigations or identified during background data review.
	Colonially – nesting bird breeding habitat (trees/shrubs)	Dead trees in large marshes and lakes, flooded timber, and shrubs, with nests of Great Blue Heron, Great Egret, Green Heron, or Black-crowned Night-Heron.	Absent. Features were not observed during field investigations or identified during background data review.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

Type	Habitat Type (MNR 2015)	Habitat Description	Candidate SWH in Study Area?
	Colonially – nesting bird breeding habitat (ground)	Rock islands and peninsulas in a lake or large river.	Absent. Features were not observed during field investigations or identified during background data review.
	Waterfowl stopover and staging areas	Fields with evidence of annual spring flooding from meltwater or runoff; aquatic habitats such as ponds, marshes, lakes, bays, and watercourses used during migration, including large marshy wetlands.	Absent. Features were not observed during field investigations or identified during background data review.
	Shorebird migratory stopover area	Muddy and unvegetated shorelines, beach areas, bars.	Absent. Features were not observed during field investigations or identified during background data review.
	Raptor wintering areas	Combination of fields and woodland (>20 ha).	Potential. Large fields in combination with woodland communities overlap with the Study Area that could provide suitable wintering habitat.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

Type	Habitat Type (MNR 2015)	Habitat Description	Candidate SWH in Study Area?
	Bat maternity colonies	Mixed and deciduous forests and swamps with large diameter dead or dying trees with cavities.	Potential. Candidate trees >10 cm diameter at breast height (DBH) were observed in the Study Area in mature forests, swamps, thickets and woodlands.
	Reptile hibernacula	Rock piles or slopes, stone fences, crumbling foundations.	Potential. Regulated habitat for Gray Ratsnake is present within the Study Area. Additionally, limestone outcrops and exposed bedrock features were observed along the ROW.
	Turtle wintering area	Permanent waterbodies and large wetlands with sufficient dissolved oxygen; man-made ponds are not considered SWH.	Potential. Butlers Creek, the unnamed tributary and associated wetlands, and the unevaluated wetlands not associated with Butlers Creek may provide suitable habitat to support turtle overwintering.
	Migratory butterfly stopover area	Fields and forests that are a minimum of 10 ha and are located within 5 km of Lake Erie or Lake Ontario.	Absent. Study Area is > 5 km from Lake Ontario.
	Land bird migratory stopover area	Woodlands of a minimum size of 10 ha located within 5 km of Lake Ontario.	Absent. Study Area is > 5 km from Lake Ontario.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

Type	Habitat Type (MNR 2015)	Habitat Description	Candidate SWH in Study Area?
Rare Vegetation Communities	Sand barren, alvar, cliffs and talus slopes	Sand barren, Alvar, Cliff and Talus ELC Community Classes, and other areas of exposed bed rock and patchy soil development, near vertical exposed bedrock and slopes of rock rubble.	Absent. Communities were not observed during field investigations.
	Prairie and savannah	Open canopy habitats (tree cover < 60%) dominated by prairie species.	Absent. Communities were not observed during field investigations.
	Old growth forest	Relatively undisturbed, structurally complex; dominant trees > 100 year's old. Woodlands > 30 ha qualify.	Absent. Old growth forest was not observed during field investigations.
	Other rare vegetation communities	Vegetation communities ranked S1-S3 by the NHIC.	Absent. Features were not observed during field investigations.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

Type	Habitat Type (MNR 2015)	Habitat Description	Candidate SWH in Study Area?
Specialized Habitat for Wildlife	Waterfowl nesting areas	Upland habitats adjacent to wetlands.	Absent. Wetland communities are too small to support adjacent significant waterfowl nesting areas.
	Bald Eagle and Osprey nesting, foraging and perching habitat	Treed communities adjacent to rivers, lakes, ponds, and other wetlands with stick nests of Bald Eagle or Osprey.	Potential. No stick nests were observed during field investigations; however, habitat may occur in the Study Area due to the large forests and adjacency to the St. Lawrence River.
	Woodland raptor nesting habitat	Stick nests in forested ELC communities >30 ha with 10 ha of interior habitat.	Potential. No stick nests were observed during field investigations, however, habitat may occur in the Study Area due to the large mature forests.
	Turtle nesting areas	Exposed soil, including sand and gravel in open sunny areas in proximity to wetlands.	Absent. No natural turtle nesting habitat was observed. There is potential for turtles to nest in sandy gravel areas on road shoulders; however, this habitat does not qualify as SWH.
	Seeps and springs	Any forested area with groundwater at surface within the headwaters of a stream or river system.	Absent. Features were not observed during field investigations.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

Type	Habitat Type (MNR 2015)	Habitat Description	Candidate SWH in Study Area?
	Amphibian breeding habitat (woodland and wetland)	Treed uplands with vernal pools, and wetland ecosites.	Potential. One potential candidate was observed for Amphibian breeding habitat within the FODM8-1 community, where numerous Green Frogs were observed.
	Woodland area sensitive breeding bird habitat	Large mature forest stands, woodlots >30 ha with interior forest habitat (i.e., at least 200 m from edge).	Potential. Large forest communities >30 ha are present in the Study Area.
Habitat for Species of Conservation Concern	Open country bird breeding habitat	Large grasslands and fields (>30 ha) with two or more of the following species: Upland Sandpiper, Grasshopper Sparrow, Vesper Sparrow, Northern Harrier, Savannah Sparrow OR with nesting Short-eared Owls.	Absent. There are no grasslands or fields >30 ha present in the Study Area.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

Type	Habitat Type (MNR 2015)	Habitat Description	Candidate SWH in Study Area?
	Shrub/early successional bird breeding habitat	Large shrub and thicket habitats (>10 ha) with: At least one Brown Thrasher or Clay-colored Sparrow breeding, OR At least two of Field Sparrow, Black-billed Cuckoo, Eastern Towhee and Willow Flycatcher OR Nesting Yellow-breasted Chat or Golden-winged Warbler.	Absent. There are no shrub and thicket habitats >10 ha present in the Study Area.
	Marsh bird breeding habitat	Wetlands with shallow water and emergent aquatic vegetation with American Bittern, Virginia Rail, Sora, Common Moorhen, American Coot, Pied-billed Grebe, Marsh Wren, Sedge Wren, Common Loon, Sandhill Crane, Green Heron, Trumpeter Swan, Black Tern, or Yellow Rail	Absent. Wetland communities in the Study Area do not contain suitable habitat to support marsh breeding birds.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

Type	Habitat Type (MNR 2015)	Habitat Description	Candidate SWH in Study Area?
	Special Concern and provincially rare (S1-S3) wildlife	An assessment of habitat for special concern and provincially rare wildlife is included in Appendix D.	<p>Candidate SWH present for Monarch, Barn Swallow, Eastern Wood-Pewee, Tufted Titmouse, Wood Thrush, Eastern Milksnake, Eastern Ribbonsnake, Midland Painted Turtle, and Snapping Turtle in the Study Area.</p> <p>Eastern Milksnake, Eastern Ribbonsnake, Snapping Turtle, and Midland Painted Turtle have potential to be present in the project limits.</p>
Animal Movement Corridors	Amphibian movement corridors	Associated with confirmed amphibian breeding habitat.	Undetermined. Cannot be confirmed without targeted amphibian surveys.
	Deer movement corridors	Associated with confirmed deer wintering habitat.	Absent. No deer wintering habitat was identified by the MNR; therefore, there is no candidate habitat for deer movement corridors in the Study Area.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

3.2.7 Habitat Assessment for Species at Risk

Habitat assessments completed for the Study Area (Appendix D) determined that 11 SAR have the potential to occur in the Study Area based on the presence of suitable habitat and overlapping observations or ranges:

- Blanding's Turtle
- Gray Ratsnake
- Little Brown Myotis
- Northern Myotis
- Eastern Small-footed Myotis
- Tri-colored Bat
- Hoary Bat
- Eastern Red Bat
- Silver-haired Bat
- Butternut
- Black Ash

3.2.8 Gray Ratsnake Habitat Assessment

One potential hibernacula for Gray Ratsnake is present along the Highway 401 ROW in the form of rock outcrops of fissured bedrock. See Figure 3, Appendix A for potential snake hibernacula sites.

3.3 Summary of Natural Heritage Features

Table 4 provides a summary of the natural heritage features that were confirmed or have the potential to be present in the Study Area.

Features/species that were present or have the potential to be present in the Study Area were carried forward to the to the Impact Assessment provided in Section 5.0 where standard and site-specific protection measures for these features are provided in Section 6.0.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

Table 4 Summary of Natural Heritage Features for the Study Area

Type	Species/Feature	Description
Cataraqui Region Conservation Authority Designation	Regulated Area (feature plus 50 m buffer)	Associated with Butlers Creek, the unnamed watercourse, and unevaluated wetlands.
Ecological Significant Area	Frontenac Arch Biosphere Reserve	Overlaps with the Study Area but does not occur within the Highway 401 ROW.
Migratory Birds	Bird Nests	May be present in vegetation. There were no nests observed during field investigations, but new nests could be established in subsequent years.
Vegetation	Wetlands	A deciduous swamp, meadow marsh, and unevaluated wetlands are present in the Study Area. South Augusta Wetland Complex PSW is located within 1 km of the Study Area.
Candidate SWH	Raptor Wintering Area	Large fields in combination with woodland communities overlap with the Study Area that could provide suitable wintering habitat.
	Bat maternity colonies	Candidate trees >10 cm DBH were observed in the Study Area in mature forests with potentially other suitable candidate trees that could not be observed from the ROW.
	Reptile Hibernacula	Outcrop and bedrock features are present within the Highway 401 ROW.
	Turtle Wintering Area	Butlers Creek, unnamed tributary, and surrounding riparian wetland features may provide suitable overwintering habitat within the Study Area.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

Type	Species/Feature	Description
	Bald Eagle and Osprey Nesting, Foraging, and Perching Habitat	Large forests with suitable high-canopy trees are present within the Study Area and are in proximity to the St. Lawrence River.
	Woodland Raptor Nesting Habitat	Potential for stick nests due to large forests in the Study Area and adjacency to the St. Lawrence River.
	Amphibian breeding habitat (woodland)	Potential habitat for breeding amphibians is present within the deciduous forest (FODM8-1) where numerous Green Frogs were observed.
	Woodland Area Sensitive Breeding Bird Habitat	Large contiguous forests may provide suitable breeding habitat for woodland area sensitive bird species. Red-eyed Vireo and American Redstart were observed.
SAR	<ul style="list-style-type: none"> • Blanding’s Turtle • Gray Ratsnake • 7 Bat SAR (Little Brown Myotis, Northern Myotis, Eastern Small-footed Myotis, Tri-colored Bat, Hoary Bat, Eastern Red Bat, and Silver-haired Bat) • Butternut • Black Ash 	<ul style="list-style-type: none"> • Potential habitat for Blanding’s Turtle is present in the unevaluated wetland pockets associated with Butler’s Creek and an unnamed tributary. Blanding’s Turtles may enter the work area when seeking nesting sites (e.g., gravel shoulders) or when moving between habitats. • Potential habitat for Gray Ratsnake is present in forests, woodlands, meadows, and agricultural areas in the Study Area. In addition to Gray Ratsnake hibernacula observed within the limestone outcrops and exposed bedrock features along the ROW.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

Type	Species/Feature	Description
		<ul style="list-style-type: none"> • Potential habitat for Bat SAR is present in mature forests that contain cavity trees adjacent to the Highway 401. Two potential cavity trees were observed, and are discussed in later sections. • Potential habitat for Butternut is present along the forest edges in the Study Area. None observed from the ROW during fieldwork. • Potential habitat for Black Ash is present within the SWD communities of the Study Area. None observed from the ROW during fieldwork.
SOCC	<ul style="list-style-type: none"> • Barn Swallow • Eastern Wood-Pewee • Tufted Titmouse • Wood Thrush • Eastern Milksnake • Eastern Ribbonsnake • Monarch • Snapping Turtle • Midland Painted Turtle 	<ul style="list-style-type: none"> • Although no nests were observed within the structures potential breeding habitat for Barn Swallow is present in the Study Area in the form of rural buildings and box culverts in subsequent years. • Potential breeding habitat for Eastern Wood-Pewee, Tufted Titmouse, and Wood Thrush is present in the Study Area in the form of contiguous deciduous forests and swamps. • Habitat is present in the Study Area for Monarch as an individual was observed within the Highway 401 ROW. • Potential snake habitat is present in forests, meadows, and agricultural areas within the Study Area. Snake hibernacula is also present within the limestone outcrops and exposed bedrock features observed along the ROW.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

3 Terrestrial Ecosystems Existing Conditions

February 11, 2026

Type	Species/Feature	Description
		<ul style="list-style-type: none">• Potential habitat for turtles is present in the unevaluated wetland pockets, watercourses, and the adjacency to gravel road shoulders suitable for nesting.• Eastern Milksnake, Eastern Ribbonsnake, Snapping Turtle, and Midland Painted Turtle have the potential to enter the project limits.



4 Description of Work

The proposed works for the project include, but are not limited to, vegetation removal, excavation, grading, paving, earthworks, rehabilitation or replacement of bridge and culverts, repaving and widening, and drainage improvements.

The following work is included to complete the project:

- Widening Highway 401 to an interim six-lanes and ultimate eight lane cross-section
- Replacement of existing noise barrier west of Butlers Creek
- Replacement of Butlers Creek culvert with a 4.2 x 2.4 m box culvert
- Three culvert extensions consisting of box culverts
- Replacement of the existing Sharpe's Lane bridge over Highway 401



5 Impact Assessment

The proposed improvements will require earth clearing and grading, including loss of meadows, thickets, woodlands, forests, swamps and wetland communities. These communities support a variety of wildlife habitats which are discussed in the sections below.

In addition to direct loss, potential impacts associated with the proposed works could include soil compaction, siltation of nearby natural communities, disturbance to wildlife species, spills of deleterious substances into natural communities, and noise disturbance. These impacts are expected to be short term and localized to the work area during construction activities and lessened through the application of appropriate construction techniques and mitigation measures. Standard environmental protection and feature-specific mitigation measures are discussed in separate sections below.

5.1 Loss of Terrestrial Habitat

The proposed widening of Highway 401, and associated structural replacements, will result in permanent and temporary loss of vegetation. Permanent habitat loss includes areas where there is permanent infrastructure and temporary habitat loss are areas that can be restored following construction (e.g., staging areas, etc.). Vegetation removal, earth clearing, paving and grading will result in a direct loss of approximately 26.26 ha of terrestrial habitat within the project limits, of which 9.84 ha is currently constructed land (e.g., residential land, and roadways) (see Table 5 and Figure 4, Appendix A). The vegetation communities that will be most impacted are meadow communities (9.78 ha), followed by forested habitat (4.03 ha), thickets (1.39 ha), woodlands (0.39 ha), and wetlands (0.71 ha). Loss of habitat by ELC community based on the Preferred Plan is shown in Table 5.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report
5 Impact Assessment
February 11, 2026

Table 5 Terrestrial Habitat Impacted within the Study Area

Vegetation Community	Area to be removed (ha)
Meadow Communities (9.78 ha)	
MEMM3	0.03
MEMM3/MEMM4	9.75
Thicket Communities (1.39 ha)	
THDM2	0.66
THDM5	0.52
THDR1	0.06
THMM1	0.15
Woodland Communities (0.39 ha)	
WODM4	0.22
WODM5	0.13
WODM5-1/THDM2	0.04
Forest Communities (4.03 ha)	
FODM4	0.36
FODM4/FOCM6-3	0.65
FODM5-11	0.03
FODM6-5	0.05
FODM7-2	1.17
FODM7-9	0.79
FODM8-1/FOCM6	0.32
FOCM6/FODM8-1	0.66
Wetland Communities (0.71 ha)	
MAMM1-2	0.21
SWDM2-2	0.50



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report
5 Impact Assessment
February 11, 2026

Vegetation Community	Area to be removed (ha)
Agricultural Communities (0.12 ha)	
SAGM2	0.02
TAGM3	0.02
TAGM5/FODM11	0.08
Constructed Communities (9.84 ha)	
CGL	0.09
CVC_4	0.01
CVI_1	9.24
CVR/CGL	0.20
CVR_3	0.03
CVR_4	0.23
CVC_4/ME	0.04
TOTAL	26.26

5.2 Potential Disturbance to Wetlands

The Green Ash Mineral Deciduous Swamp (SWDM2-2) that is present south of Highway 401 within the proposed project limits (Figure 4, Appendix A), and a portion of an unevaluated wetland within the Dry- Fresh Mixed Meadow / Fresh – Moist Mixed Meadow Ecosite (MEMM3/MEMM4) south of Highway 401 adjacent to Butlers Creek will be impacted. In addition to these wetlands, a marsh community interspersed with meadows along the ROW will also be impacted. Wetlands containing candidate SWH may also be impacted as discussed in Section 3.2.6.

Standard sediment and erosion control (Section 6.2.1) methods are recommended along all wetland communities and near watercourse boundaries (Figure 4, Appendix A). Vegetation protection measures in Section 6.2.2 and invasive species management measures in Section 6.2.5, are also recommended to reduce indirect impacts to wetlands.



5.3 Potential Interference with Nesting Birds

Vegetation within the project limits has the potential to support migratory bird nests. Any work near active bird nests has the potential to disturb nesting behaviour or damage/destroy the nests, particularly if vegetation clearing occurs during the active breeding window (i.e., April 1 – August 31). Although no nests were observed on the structures (the Butlers Creek culvert, the Sharpes Lane bridge over Highway 401 and three additional culverts) located within the project limits during field investigations, it is possible for nests to appear in subsequent breeding bird windows.

Measures to reduce impacts to protected bird nests will be implemented as outlined in Section 6.2.3.

5.4 Significant Wildlife Habitat

Vegetation removal will result in permanent and temporary loss of candidate SWH. The following candidate SWH features were present in the project limits:

- Raptor Wintering Area
- Bat Maternity Colonies
- Reptile Hibernacula
- Turtle Wintering Area
- Woodland Raptor Nesting Habitat
- Amphibian Breeding Habitat (woodland)
- Habitat for SOCC (Eastern Milksnake, Eastern Ribbonsnake, Monarch, Snapping Turtle, and Midland Painted Turtle).

Construction phase disturbance to candidate SWH can be mitigated through standard environmental protection measures for sediment and erosion control and vegetation protection, as discussed in Sections 6.2.1 and 6.2.2. Measures to reduce impacts to migratory birds are outlined in Section 6.2.3. Standard mitigation to reduce harm to wildlife is provided in Section 6.2.4, while site-specific mitigation for SAR and SOCC are provided in Section 6.3.



5.5 Potential Disturbance to Species at Risk and Species of Conservation Concern

Suitable habitat for SAR and SOCC in the Study Area was primarily associated with deciduous forest, woodland and wetlands communities. Potential impacts to SAR and SOCC that may be encountered within the project limits, including Blanding's Turtle, Gray Ratsnake, Bat SAR, Eastern Milksnake, Eastern Ribbonsnake, Monarch, Snapping Turtle, and Midland Painted Turtle are discussed below.

Construction phase disturbance to habitat of SAR and SOCC can be mitigated through standard environmental protection measures for sediment and erosion control and vegetation protection, as discussed in Section 6.2.1 and 6.2.2, respectively, and through site-specific measures as discussed in Section 6.3. Mitigation to reduce harm to wildlife is provided in Section 6.2.4.

5.5.1 Species at Risk

Potential habitat for Blanding's Turtle, Gray Ratsnake, and Bat SAR were identified in the Study Area and may be directly impacted from construction.

Blanding's Turtle – Blanding's Turtle may be present in the unevaluated wetland pockets associated with Butlers Creek and an unnamed tributary. Blanding's Turtle may enter the work area when seeking nesting sites (e.g., gravel shoulders) or when moving between habitats. It is not anticipated that Blanding's Turtle's or their habitat will be permanently impacted, and any potential interactions or impacts related to Blanding's Turtles are expected to be incidental and temporary in nature. It is assumed that through the systematic implementation of mitigation measures outlined in Section 6.3.2 adverse impacts and incidental encounters can be effectively mitigated.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

5 Impact Assessment

February 11, 2026

Gray Ratsnake – Potential habitat for Gray Ratsnake may be present in the forests, woodlands, meadows, and agricultural areas in the Study Area. Additionally, one potential snake hibernacula was also observed within the project limits (Figure 4, Appendix A). In addition to direct loss of habitat, construction activities such as grading and excavation can result in direct mortality to Gray Ratsnakes. Mitigation measures for Gray Ratsnakes has been provided in Section 6.3.3.

Bat SAR – Potential habitat is present for both migratory and resident bat SAR in mature forests and woodlands adjacent to the Highway 401. Additionally, two potential bat SAR cavity trees were observed within the project limits (Figure 4, Appendix A). In addition to direct loss of habitat, tree removal can result in direct mortality to bat SAR. Protection for bats is provided by the timing restrictions identified in Section 6.3.4.

5.5.2 Species of Conservation Concern

The following SOCC have potential to be directly impacted during construction activities due to their behaviour, habitat preferences, or movement patterns:

Eastern Milksnake and Eastern Ribbonsnake – Although these species were not directly observed construction activities can result in direct mortality to snakes. Snakes may be vulnerable during emergence from a hibernaculum, re-entrance, and basking periods, and may seek out construction materials to bask under. Peak activity for Eastern Milksnake and Eastern Ribbonsnake is typically between April and late June (MNRF 2016). With the implementation of mitigation measures (Section 6.3.5) no direct impacts are expected.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

5 Impact Assessment

February 11, 2026

Monarch – was observed in a meadow community within the Highway 401 ROW during field investigations but may also be present in areas that contain milkweed and wildflowers. The larvae occur only where milkweed (Monarch's larval host plant) exists, whereas adults are more generalized, feeding on a variety of wildflower nectar. Monarch and its habitat (i.e., milkweed patches) was observed in areas that will experience temporary and permanent disturbance during construction. Site specific mitigation measures for Monarch are discussed in Section 6.3.6.

Turtle SOCC (Snapping Turtle, Midland Painted Turtle) – Although these species were not directly observed interaction with turtle SOCC during construction activities could result in direct mortality. The watercourses and wetlands in the Study Area may provide suitable habitat for turtles and individuals during peak activity periods (April 1 to October 31), including movement between wintering and nesting sites, nesting in the road shoulder and basking or foraging in the ROW. Mitigation measures to reduce potential impacts to turtles are discussed in Section 6.3.2.



6 Environmental Protection Measures

Mitigation will be implemented to reduce the likelihood of impacts to the natural environment. Section 6.2 describes standard measures that may be applicable for the project limits. Site-specific recommendations are discussed in Section 6.3.

6.1 Ontario Provincial Standard Specifications

The following Ontario Provincial Standard Specifications (OPSS) are applicable to the project:

- OPSS 180 – General Specification for the Management of Excess Materials
- OPSS 182 – Environmental Protection for Construction in Waterbodies and on Waterbody Banks
- OPSS 801 – Construction Specification for the Protection of Trees
- OPSS 803 – Construction Specification for Vegetative Cover
- OPSS 804 - Construction Specification for Temporary Erosion Control
- OPSS 805 – Construction Specification for Temporary Sediment Control

The OPSSs are applicable to the following general activities:

- **Management of Excess Materials** – Excess material shall be managed in accordance with OPSS 180 and O.Reg. 406/19.
- **Equipment Use** – Use of equipment shall be in accordance with OPSS 182.
- **Erosion and Sediment Control** – The installation, monitoring, maintenance, and removal of temporary erosion and sediment control measures shall be according to OPSS 182, OPSS 801, OPSS 804 and OPSS 805.
- **Vegetation Removal and Restoration of Disturbed Areas** – Vegetation protection and rehabilitation shall be in accordance with OPSS 182, OPSS 801, OPSS 803 and OPSS 804. Seed Mix will be used to reseed disturbed areas.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

6 Environmental Protection Measures

February 11, 2026

6.2 Standard Environmental Protection Measures

The following sections describe standard measures that will be applied to project limits.

6.2.1 Erosion and Sedimentation Control

Mitigation measures for sedimentation, erosion, and dust control should be implemented to prevent sediment and dust from entering sensitive natural features. The primary principles associated with sedimentation and erosion protection measures are to:

- Reduce the duration of soil exposure
- Retain existing vegetation, where feasible
- Encourage re-vegetation
- Divert runoff away from exposed soils
- Keep runoff velocities low
- Trap sediment as close to the source as possible

To address these principles, the following mitigation measures are recommended:

- Silt fencing and/or barriers are recommended along project limits where there is potential for sedimentation of watercourses or wetlands, or inadvertent encroachment of construction vehicles into natural areas.
- Avoid entering any natural areas beyond the barrier fencing with equipment and avoid excess vegetation removal.
- Re-vegetate disturbed areas as soon as possible to help re-stabilize soils following OPSS 803 (Construction Specification for Vegetative Cover). Vegetation plantings shall include a seed mix that is appropriate to the area and similar to or better than pre-construction conditions.
- Re-fuel equipment 30 m away from watercourses to reduce potential impacts if an accidental spill occurs.
- In addition to any specified requirements, make additional silt fence available on site, prior to grading operations, to provide a contingency supply in the event of an emergency.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

6 Environmental Protection Measures

February 11, 2026

- Monitor all sediment and erosion controls regularly and properly maintain, as required. Remove controls only after the soils of the construction area have been stabilized and adequately protected or until cover is re-established.
- Monitor limits of construction adjacent to natural features during construction (along with sediment and erosion control measures) to make sure that the limits are maintained with respect to vehicular traffic and soil or equipment stockpiling.
- Avoid stockpiling excess materials on site.
- Restore any disturbed natural areas to pre-construction conditions.

6.2.2 Vegetation Removal

During construction adjacent to vegetated areas, heavy equipment could damage peripheral vegetation from contact, excavation, and/or soil compaction. In areas where trees are present adjacent to construction activities that are not required to be removed for grading, tree protection is recommended to avoid encroachment.

Post-construction seeding of the disturbed ROW should be done with a suitable native seed mix. Seed mixes should include fast-growing, short-lived perennial cover crop to stabilize soil and reduce competition from weedy exotics. It is recommended that new seed be introduced to disturbed substrates as soon as feasible following construction and sediment fencing remain in place until vegetation cover is re-established.

Vegetation removal should be undertaken outside of the migratory bird nesting period (April 1 to August 31) and bat window (April 1 to November 30), as discussed in Sections 6.2.3 and 6.3.4. If in-water works/vegetation removals are required within wetlands that may also support turtle wintering habitat, those activities should occur between April and October to avoid potential harm to overwintering turtles (see Section 6.3.2).



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

6 Environmental Protection Measures

February 11, 2026

6.2.3 Protection of Migratory Birds

The MBCA protects nests of migratory birds from damage while they are active, including nests in vegetation and on structures. For all migratory birds, the core nesting period is identified as April 1 to August 31 (Government of Canada 2018). Vegetation clearing during nesting periods in migratory bird breeding habitat can destroy active nests and contravene the MBCA. Vegetation clearing is recommended to occur outside the core nesting period to eliminate the need for migratory bird nest searches. If work must take place during the core nesting period and the area is small enough to be effectively searched for nesting birds, then a breeding bird survey can be completed by a Qualified Biologist. The area where vegetation is to be removed must be searched within five days prior to the work commencing. If breeding pairs are located, then they will be protected with a buffer until the nest is no longer active.

If an active nest is observed during construction, a designated buffer will be delineated within which no activity will be allowed to occur while the nest is active (i.e., with eggs or young). The radius of the buffer will be determined by a Qualified Professional. Once the nest is determined to be inactive (e.g., the young have fledged the nest), clearing and other activities in the area may proceed. Although no nests were observed within the assessed structures (i.e., box culverts and Sharpes Lane Bridge) within the project limits, potential breeding habitat for Barn Swallow may occur in subsequent years.

Pileated Woodpecker nests have a designated 36-month waiting period where they must be confirmed unoccupied prior to removal. However, there is an option to obtain a permit and waive the 36-month waiting period if the nest is confirmed unoccupied during the previous breeding season. In both cases, a “Nest Notification” is required using the Environment Climate Change Canada (ECCC) Abandoned Nest Registry system.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

6 Environmental Protection Measures

February 11, 2026

6.2.4 Wildlife Protection

The following environmental mitigation and protective measures for wildlife and wildlife habitat are recommended:

- Wildlife shall not be harmed or harassed.
- Construction equipment and vehicles are to yield to wildlife.
- Inform construction personnel not to threaten, harass or injure wildlife.
- If wildlife are encountered during construction, personnel are required to move away from the animal and wait for the animal to move off the construction site. If slow-moving wildlife (e.g., turtles, snakes) are observed on the road and are in danger, and if safe to do so, they should be moved off the road by gently guiding the individual in the direction it was traveling.

6.2.5 Invasive Species Management

During the field investigations no invasive species listed as ‘restricted’ were observed throughout the Study Area, although the following mitigation measures should be followed to prevent the introduction of invasive Phragmites or other regulated invasive species.

- The contractor shall implement the Clean Equipment Protocol for Industry (Halloran et al. 2013) to reduce the likelihood of the introduction and spread of invasive species.
- Designated areas for equipment cleaning and invasive species stockpiles may be temporarily required during construction. If designated areas are required, they will be identified and demarcated in the field. The designated areas will not be located in or near watercourses, environmentally sensitive features, or areas where invasive species are not currently present.
- Soil contaminated with invasive species will not be re-used for restoration activities.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

6 Environmental Protection Measures

February 11, 2026

6.3 Site-Specific Protection Measures

Site-specific protection measures are required for sensitive species or habitats that may be present within the Study Area and where standard mitigation measures alone do not provide sufficient protection.

6.3.1 Wetlands

Standard sediment and erosion control measures (Section 6.2.1) are recommended where work will occur within 30 m of wetland communities.

It is anticipated with the Preferred Plan that impacts to unevaluated wetlands located around the Butlers Creek will take place during the culvert replacement works. Given the footprint impacts associated with the proposed work is primarily at the edges of the unevaluated wetlands, it is anticipated that the functions of these designated areas within the project's limits will not be impaired upon completion of the project.

6.3.2 Turtle SAR (Blanding's Turtle) and SOCC (Snapping Turtle, Midland Painted Turtle)

There is potential for SAR Blanding's Turtle, and SOCC Snapping Turtle and Midland Painted Turtle to be encountered within the project limits associated with the Butlers Creek culvert replacement as well as other project works.

Turtle nesting typically takes place in June, with eggs remaining in the nest until September. Turtles are likely to be encountered during the mating season, which generally occurs from late May to early July (MNR 2013). Overwintering occurs in wetlands with standing water and soft substrates, generally between November and March.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

6 Environmental Protection Measures

February 11, 2026

The following mitigation measures are recommended to reduce the likelihood of impacts to turtles:

- Implement a worker awareness program for construction staff that includes Blanding's Turtle, Snapping Turtle, and Midland Painted Turtle identification and habitat characteristics.
- If any SAR or SOCC turtles or their nests are observed during the site inspection or at any other time, the Contractor shall immediately halt construction in the vicinity of the observation. SAR that are encountered within the project limits should be allowed a reasonable amount of time to leave the work area. A Qualified Biologist shall notify MTO's Contract Administration once the SAR has left the work area prior to continuation of construction.
- The Qualified Biologist shall contact MTO's Contract Administration immediately to notify them of SAR observations within the work area. Upon approval from MTO, the Qualified Biologist shall report the SAR observation to MECF within 24 hours of the observation, and if necessary, seek advice on how to proceed if the encountered SAR has remained within or adjacent to the work area. Confirmed sightings of SAR species within the work area should be compiled and reported on to the Natural Heritage Information Centre (NHIC) following construction, using a SAR encounter form. SAR should only be handled by qualified professionals who have knowledge of the species and the correct approvals to undertake SAR handling.
- If in-water works/vegetation removals are required within wetlands that may also support turtle wintering habitat, those activities should occur between April and October to avoid potential harm to overwintering turtles.
- Erect exclusion fencing (e.g., light geotextile silt fence) around proposed construction areas prior to start of work to reduce the likelihood of turtles entering the work area.
- Install exclusion fencing prior to the sensitive nesting season if activities are anticipated to occur throughout this period to prevent turtles from entering and/or nesting (MNR 2013): Prior to June 1 if activities are occurring within or adjacent to nesting habitat (i.e., exposed soils adjacent to or along riverbanks). If construction activities commence after June 1, a Qualified Biologist must be present on site to oversee the installation.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

6 Environmental Protection Measures

February 11, 2026

- If erecting exclusion fencing, use a type that will last the duration of the project (MNRF 2016). Check that stakes are securely driven into the ground on the inside of the working area. Place stakes 2 m apart and drive them to a depth of 30 cm, with the fabric pulled tight to reduce sagging, and the bottom of the fabric buried 10-20 cm down within an additional fabric lip extending outwards 90 degrees.
- Backfill and compact the fabric lip (MNRF 2013).
- Inspect any fenced off areas daily to identify compromises in the fence and to remove any turtles that may be trapped in the fence (MNRF 2016).
- Install fencing so that it prevents construction sediment from entering wetlands (MNRF 2016).
- Have a qualified person conduct a pre-construction sweep and monitor the work area for active turtle nests during the turtle nesting season (June-August).
- If turtle eggs are encountered or unearthed during the construction activities all operations must immediately stop within 5 m of the active nest.
- If a turtle is encountered that has already begun to nest (i.e., digging and/or sitting in a nest pit), construction activities should stop within 5 m of the turtle, and the turtle to be left alone to complete the egg-laying process and leave the area on its own accord.
- Stockpiled topsoil, sand, and/or gravel must be completely encircled with silt fence or completely covered with geotextile to prevent turtles accessing and nesting in the materials from May 15 to July 15 of any year.

6.3.3 Gray Ratsnake

During field investigations, one potential snake hibernaculum was observed within the project limits. The following mitigation measures should be employed during construction to protect any species which may be present. These mitigations include:

- Implement awareness programs, staking of project limits, and species reporting.
- For work proposed during the active season of Gray Ratsnake (April 1 to November 30) (ECCC, 2020), a daily survey of the active work area (i.e., prior to construction each day) will occur to check that Gray Ratsnake has not entered the area.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

6 Environmental Protection Measures

February 11, 2026

- Fencing should be installed in consultation with a Qualified Professional and in accordance with *Species at Risk Branch – Best Practices Technical Note Reptile and Amphibian Exclusion Fencing* (MNR, 2013), including:
 - Fencing will be at least 2 m high, buried 10 – 20 cm below grade on the species side.
 - Material on the species side should be smooth to prevent snakes from climbing into the excluded area.
 - Installed so that stakes are on the activity side of the fence and a lip to deter climbing.
- Additional Gray Ratsnake surveys may need to be completed to determine if Gray Ratsnake are present within the project limits. Additionally, consultation with MECP through a preliminary screening and/or Information Gathering Form (IGF), as appropriate for the situation may be required to determine if a permit may be required based on the available information. This process will be in effect until the SCA is enacted and the ESA is revoked. If vegetation is scheduled after the SCA is enacted and consultation with MECP has not been completed, new conditions may be required under the SCA. Details of the ESA and considerations to consult with MECP are discussed in Section 7.
- If Gray Ratsnake are observed within the project limits prior to, or during construction, the Qualified Biologist shall coordinate with the MTO Contract Administration to implement the following mitigation measures to prevent adverse impacts to the SAR:
 - **Temporary Work Stoppage during SAR Encounter:** If any SAR or their nest is observed during the site inspection or at any other time, the Contractor shall immediately halt construction in the vicinity of the observation. SAR that are encountered within the project limits should be allowed a reasonable amount of time to leave the work area. The Qualified Biologist shall notify MTO's Contract Administration once the SAR has left the work area prior to continuation of construction.
 - **Report SAR Observations within the Work Area to the MECP:** The Qualified Biologist shall contact MTO's Contract Administration immediately to notify them of SAR observations within the work area. Upon approval from MTO, the Qualified Biologist shall report the SAR observation to MECP within 24 hours of the observation, and if necessary, seek advice on how to proceed if the encountered SAR has remained within or adjacent to the work area. Confirmed sightings of SAR species



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

6 Environmental Protection Measures

February 11, 2026

within the work area should be compiled and reported on to the Natural Heritage Information Centre (NHIC) following construction, using a SAR encounter form. SAR should only be handled by qualified professionals who have knowledge of the species and the correct approvals to undertake SAR handling.

6.3.4 Bats

Potential habitat is present for both migratory and resident bat SAR in mature forests, swamps, thickets and woodlands adjacent to the Highway 401. Additionally, two potential bat SAR cavity trees were observed within the project limits. It is anticipated that monitoring in June of any given year prior to the year of construction, will need to be completed to determine if bat SAR are present within the project limits. This is typically followed by initiating consultation with MECP through a preliminary screening and/or Information Gathering Form (IGF), as appropriate for the situation, to determine if a permit may be required based on the available information. This process will be in effect until the SCA is enacted and the ESA is revoked. If vegetation is scheduled after the SCA is enacted and consultation with MECP has not been completed, new conditions may be required under the SCA. Details of the ESA and considerations to consult with MECP are discussed in Section 7.

However, in the absence of feedback from MECP, the following mitigation measures are recommended based on recent MECP guidance on other projects.

Bats are vulnerable to disturbance during their active season (April 1 through November 30). Activities that may disturb bat SAR (i.e., removal of trees ≥ 10 cm DBH, or shrubs ≥ 1 m in height) should avoid their active season.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

6 Environmental Protection Measures

February 11, 2026

Other recommended mitigation measures to compensate if the identified potential SAR cavity trees are directly impacted for loss of habitat may include:

- In consultation with MECP and a local Conservation Authority, consider actively managing (i.e., watering, tending, and replacing trees and shrubs) newly planted forested habitat within a nearby Conservation Authority's lands until a newly forested area is well established.

6.3.5 Eastern Milksnake and Eastern Ribbonsnake

There are records of Eastern Milksnake and Eastern Ribbonsnake in the Study Area and potential habitat is present in agricultural fields, meadows, thickets, wetlands and within the project limits. The following mitigation measures are recommended to address potential interaction with Eastern Milksnake and Eastern Ribbonsnake:

- A thorough visual search of the project limits by construction contractors is recommended before work commences each day. Visual searches should include inspection of machine and equipment, prior to starting equipment, particularly during the peak reptile activity period from April 1 to November 1.
- If snakes are encountered during construction, they will be permitted reasonable time to leave the area. Individuals will not be handled, chased, or harassed. If reptiles do not leave the work area on their own, contact should be made with the appropriate agency to obtain information about the species and direction on how to proceed. A qualified Biologist may need to be retained to relocate the individuals.
- If a snake hibernaculum is discovered, all work must cease, and a Qualified Biologist shall be contacted to discuss mitigation options. Overwintering snakes shall not be relocated.
- Disturbance to brush piles/logs will be avoided wherever possible. If a brush/log pile must be moved or disturbed, it will be inspected for reptiles and relocated within a few metres, to the extent possible, to retain the habitat feature.
- Potential snake hibernation sites (rock outcroppings or stumps extending below-grade, or animal burrows) should not be disturbed during the hibernation period (November 1 to March 31).



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

6 Environmental Protection Measures

February 11, 2026

6.3.6 Monarch

The following mitigation measures are recommended to reduce impacts to Monarch:

- If possible, avoid construction activities that have the potential to harm Monarch eggs, caterpillar or pupae (e.g., vegetation clearing in meadow areas) during the larval period, which is approximately June 1 to September 30 (COSEWIC 2016).
- If vegetation clearing will proceed when Monarch larvae may be present (June 1 to September 30), identification and inspection of milkweed plants shall be completed to locate Monarch larvae. If larvae are identified, a trained Environmental Monitor may relocate the species to a suitable and safe location under the direction of a Qualified Biologist. Monarch caterpillars may be moved to other milkweed plants; for other larval stages (i.e., eggs and chrysalis), entire milkweed plants should be transplanted.
- Milkweed and nectar producing plants are recommended to be included in seed mixes for areas restored to meadow to provide habitat for Monarch.



7 Consideration of the Endangered Species Act, 2007

The provincial ESA prohibits the killing, harming, capturing, or taking of a living member of a species listed as Threatened, Endangered, or Extirpated by the SARO list (O. Reg 230/08). Damage to habitat is also prohibited except where a permit is issued under S. 17(2) of the same Act or the Activity is registered under the Species at Risk Registry. Based on the field investigations there is potential harm to Blanding's Turtle, Gray Ratsnake and bat SAR.

Under the current process, consultation with the MECP should be initiated through the submission of an Information Gathering Form (IGF) to request guidance on appropriate mitigation measures and whether an Overall Benefit Permit is required under the ESA.

However, this process is likely to change with the forthcoming *Species Conservation Act* or *Species at Risk Act* and next steps should be reassessed once the ESA has been repealed.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

8 Summary

February 11, 2026

8 Summary

This Terrestrial Ecosystems Existing Conditions and Impact Assessment Report evaluated the potential for sensitive natural heritage features, including SWH and SAR within the Study Area using guidance from the Environmental Reference for Highway Design (MTO 2013).

The Study Area is a mixture of rural residential development and large tracts of contiguous forests and swamps. The Study Area to the north of the highway is occupied with residential buildings on manicured lawns with mature planted trees. Fragmented forest parcels are present between properties. The Study Area to the south of the highway is comprised of large natural tracts of forest and swamp. Meadow habitat was present as linear, narrow features adjacent to and/or within the ROW. The best available habitat occurs outside the ROW and sensitive species are less likely to occur in proximity to the project limits. However, with the Preferred Plan showing an increase from four lanes to an ultimate eight lanes encroachment of candidate SWH and SAR habitat is anticipated. Efforts to avoid and lessen the extent and likelihood of impacts to these features was reflected in the mitigation measures provided in this report.

Additional surveys may be required to determine the presence or absence of Gray Ratsnake and Bat SAR. Consultation with MECP to assess whether an ESA permit is needed due to the potential presence of these species and their habitat within the project limits.

This process is expected to change with the forthcoming *Species Conservation Act*, which will come into effect in early 2026.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

9 References

February 11, 2026

9 References

- Algonquin to Adirondacks Collaborative. 2024. Connecting lands and people across the Algonquin to Adirondacks region. Available online: <https://www.a2acollaborative.org/>.
- Black, K., R. Danby, and J. Urquhart. 2023. The Right to Roam: A Strategy to Reconnect a Continental Wildlife Pathway in the Frontenac Arch.
- Cadman, M.D., D.A. Sutherland, G.G. Beck, D. Lepage, A.R. Couturier. 2007. Atlas of the Breeding Birds of Ontario, 2001-2005. (eds) Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto, xxii +706pp.
- (CRCA) Cataraqui Region Conservation Authority. 2024. Cataraqui Conservation O. Reg. 41/24 – Regulatory Extent Screening Map. Available Online: <https://www.arcgis.com/apps/dashboards/23cd71daef3f42748de852dd0404ebeb>.
- Department of Justice. 1994. Migratory Birds Convention Act. (<http://laws-lois.justice.gc.ca/eng/acts/M-7.01/>).
- Dobbyn, J. 1994. Atlas of the Mammals of Ontario. Federation of Ontario Naturalists.
- Environment and Climate Change Canada. 2020. Recovery Strategy for the Gray Ratsnake (*Pantherophis spiloides*), Carolinian and Great Lakes/St. Lawrence populations, in Canada. Species at Risk Act Recovery Strategy Serie. Environment and Climate Change Canada, Ottawa. 3 parts, 47 pp. + vi + 23 pp. + 5 pp.
- Frontenac Arch Biosphere. 2022. Natural History – Flora. Available online: <https://frontenacarchbiosphere.ca/science/natural-history/#:~:text=The%20Frontenac%20Arch%20is%20made,rocks%20from%20the%20Paleozoic%20Era>.
- Government of Canada. 2020. Schedule 1 List of Wildlife Species at Risk. Species at Risk Public Registry, available online: <https://www.canada.ca/en/environment-climate-change/services/species-risk-act-accord-funding/listing-process/wildlife-schedule-1.html>.
- Government of Canada. 2018. General nesting periods of migratory birds in Canada. Available online: <https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods/nesting-periods.html>.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

9 References

February 11, 2026

- Henson, B.L. and K.E. Brodribb. 2005. Great Lakes Conservation Blueprint for Terrestrial Biodiversity, Volume 2: Ecodistrict Summaries. Natural Conservancy of Canada and the Ontario Ministry of Natural.
- Kraus, T., B. Hutchinson, S. Thompson and K. Prior. 2010. Recovery Strategy for the Gray Ratsnake (*Pantherophis spiloides*) – Carolinian and Frontenac Axis populations in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. vi + 23 pp.
- Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray. 1998. Ecological land classification for Southern Ontario: first approximation and its application. Ontario Ministry of Natural Resources, South Central Region, Science Development and Transfer Branch. Technical Manual ELC-005.
- (MECP) Ministry of the Environment, Conservation and Parks. 2024. Species at Risk in Ontario List. Available online: <https://www.ontario.ca/page/species-risk-ontario>.
- (MECP) Ministry of the Environment, Conservation and Parks. 2021. Gray Ratsnake (Frontenac Axis Population) Habitat Protection Summary. Available online: <https://www.ontario.ca/page/gray-ratsnake-frontenac-axis-population-habitat-protection-summary>.
- (MNR) Ministry of Natural Resources. 2000. Significant Wildlife Habitat Technical Guide. Fish and Wildlife Branch. Queen's Printer for Ontario. October 2000.
- (MNR) Ministry of Natural Resources. 2007. Endangered Species Act. Available Online: <http://www.ontario.ca/laws/statute/07e06>.
- (MNR) Ministry of Natural Resources. 2013. Occurrence Survey Protocol Blanding's Turtle (*Emydoidea blandingii*) in Ontario. May 2013. Ontario Ministry of Natural Resources Species at Risk Branch.
- (MNR) Ministry of Natural Resources. 2015. Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E. January 2015. Ontario Ministry of Natural Resources and Forestry, Peterborough.
- (MNR) Ministry of Natural Resources. 2016. Best Management Practices for Mitigating the Effects of Roads on Amphibian and Reptile Species at Risk in Ontario. April 2016. Queen's Printer for Ontario. 112 pp.
- (MNR) Ministry of Natural Resources. 2024a. Natural Heritage Information Centre (NHIC) Data on the Land Information Ontario mapping website. Ontario Ministry of Natural Resources and Forestry. Available Online: <https://www.ontario.ca/page/make-natural-heritage-area-map>.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

9 References

February 11, 2026

- (MNR) Ministry of Natural Resources. 2024b. Land Information Ontario Digital mapping of natural heritage features, Ontario Ministry of Natural Resources. Available Online:
http://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US.
- (MNR) Ministry of Natural Resources. 2024c. Ontario Plant Community and Vascular Plant Lists. Natural Heritage Information Centre, Ontario Ministry of Natural Resources and Forestry, Peterborough. Available Online:
<https://www.ontario.ca/page/get-natural-heritage-information>.
- (MTO) Ontario Ministry of Transportation. 2013. Environmental Reference for Highway Design.
- (MTO) Ontario Ministry of Transportation. 2007. Environmental Reference for Contract Preparation.
- (MTO) Ontario Ministry of Transportation. 1997. Class Environmental Assessment for Provincial Transportation Facilities. As Amended July 14, 2000.
- Oldham, M.J., W.D. Bakowsky and D.A. Sutherland. 1995. Floristic quality assessment for southern Ontario. OMNR, Natural Heritage Information Centre, Peterborough. 68 pp.
- Ontario Nature. 2020. Ontario Reptile and Amphibian Atlas [web application]. Toronto, Ontario. Available online: <https://ontarionature.org/oraa/maps/>.
- Rowe, J.S. (1972). Forest Regions of Canada. Canadian Forestry Service Publication. No. 1300: 172pp.
- Stantec Consulting Ltd. 2023. Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report. Highway 401 Planning Study, Brockville, GWP 4003-19-00.
- Stantec Consulting Ltd. 2024. Fish and Fish Habitat Existing Conditions Report. Highway 401 East of Brockville, Planning, Preliminary Design and Class Environmental Assessment Study, GWP 4111-22-00.
- United Counties of Leeds and Grenville. 2022. Official Plan for the United Counties of Leeds and Grenville. Office Consolidation September 1, 2022. Available Online:
<https://www.leedsgrenville.com/en/government/official-plan.aspx>.



Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment Report

February 11, 2026

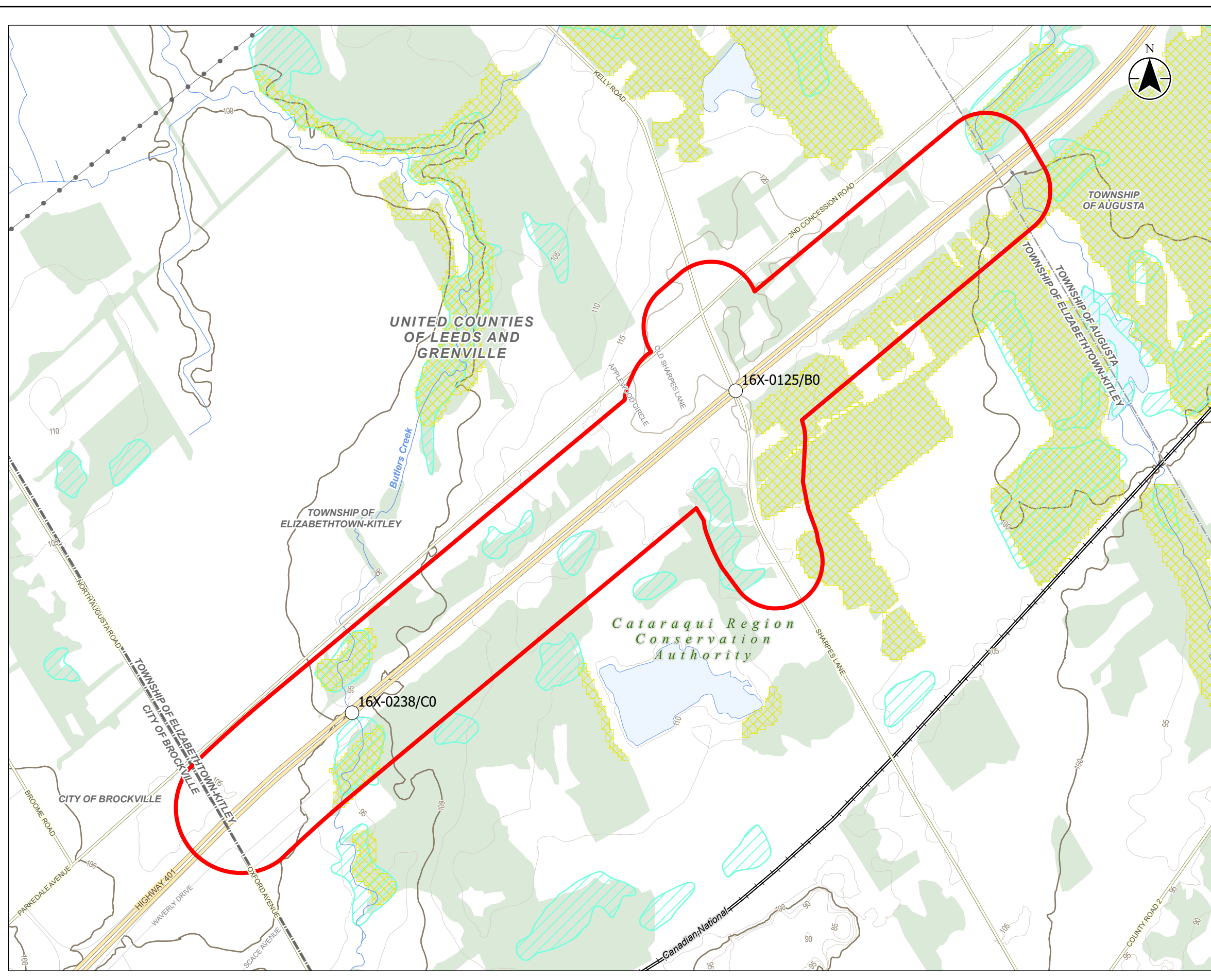
Appendices



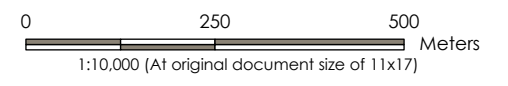
Appendix A Figures



C:\0224\sp1601\work_group\01650\active\165001328\preliminary\maps\terrestrial\intermediate\maps\4111-22-00_EC_Figures.aprx\1328_4111_EC_Fig02_Ecosystem_Background_2024-10-30_By: malcazaren Revised: 2024-10-30 By: malcazaren



- Legend**
- | | |
|----------------------------|-----------------------------|
| ○ Project Structure | Watercourse (Permanent) |
| ▭ Study Area | Conservation Authority |
| ▬ Expressway / Highway | Administrative Boundary |
| ▬ Major Road | Significant Ecological Area |
| ▬ Minor Road | Wetland, Unevaluated |
| ▬ Railway | Waterbody |
| ● Hydro Line | Municipal Boundary, Upper |
| ▬ Contour (100 m Interval) | Municipal Boundary, Lower |
| ▬ Contour (10 m Interval) | Wooded Area |
| ▬ Contour (5 m Interval) | |



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 18N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.



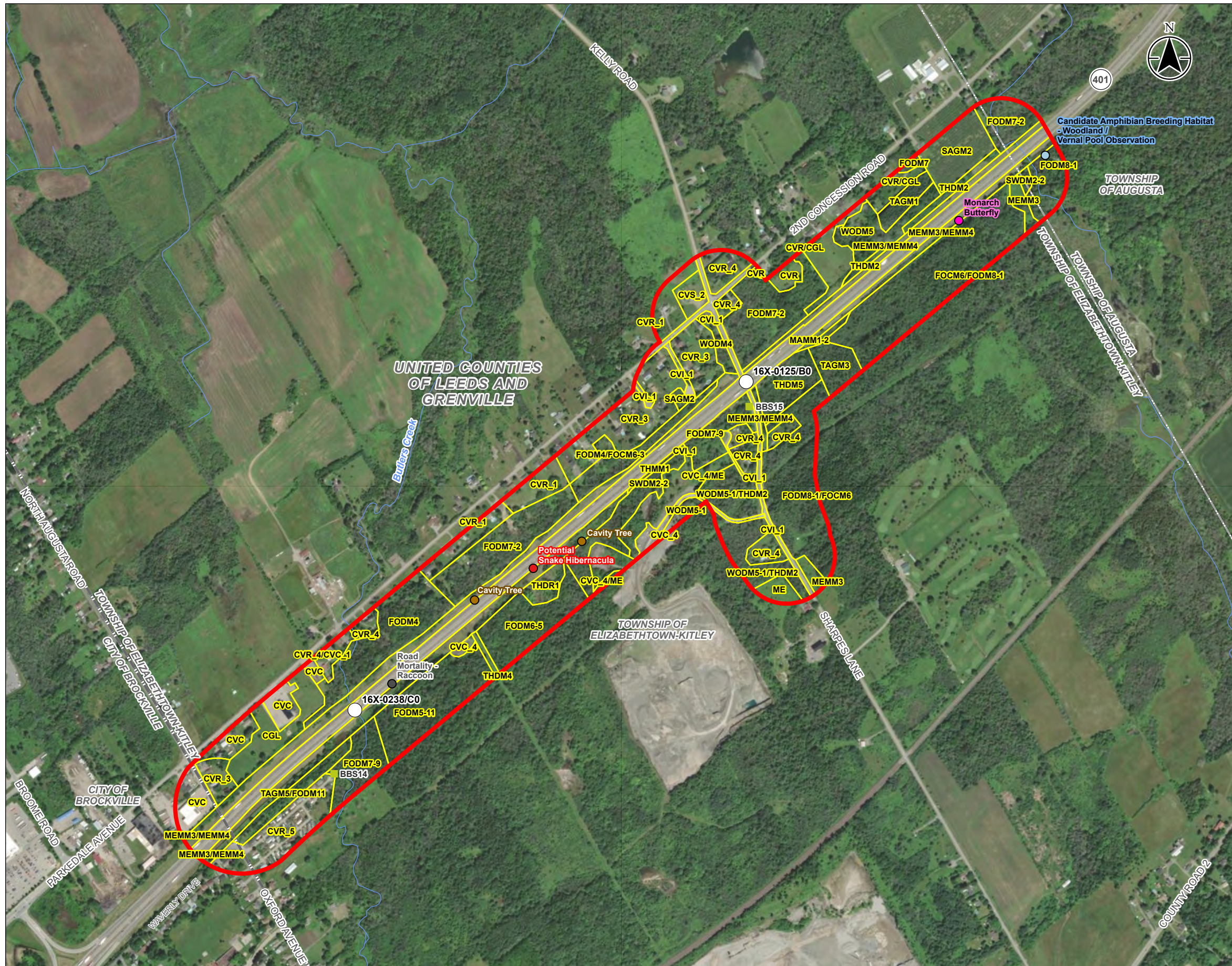
Project Location: United Counties of Leeds and Grenville
 Prepared by malcazaren on 2024-10-30
 Technical Review by JWH on 2024-10-30

Client/Project: Ministry of Transportation
 Highway 401 Planning Study East of Brockville
 (GWP 4111-22-00)

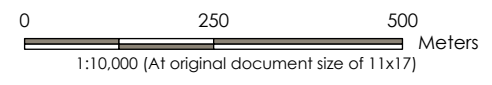
Figure No. **2**

Title: **Background Review**

\\c0224-ppl801\work_group\01650\active\165001328\preliminary\gs\maps\terrestrial\ReportFigures\1328_4111_TEF_Fig03_Field_Data_Review_2025-11-14 By: CSTAUFFER



Legend	ELC Definition
○ Project Structure	CGL (Green Lands)
□ Study Area	CVC (Commercial and Institutional)
— Watercourse (Permanent)	CVC_4 (Extraction)
▬ Municipal Boundary, Upper	CVL_1 (Transportation)
▬ Municipal Boundary, Lower	CVR (Residential)
■ BBS - Breeding Bird Survey Location	CVR_1 (Low Density Residential)
○ Incidental Observations	CVR_3 (Single Family Residential)
○ Candidate Amphibian Breeding Habitat - Woodland and Wetland	CVR_4 (Rural Property)
● Cavity Trees	CVR_5 (Trailer Park)
● Monarch	CVS_2 (Health)
● Potential Snake Hibernacula	FOCM6 (Naturalized Coniferous Plantation)
● Road Mortality	FOCM6-3 (Dry - Fresh Scotch Pine Naturalized Coniferous Plantation Type)
□ ELC	FODM4 (Dry - Fresh Upland Deciduous Forest Ecosite)
	FODM5-11 (Dry - Fresh Sugar Maple - Hardwood Deciduous Forest Type)
	FODM6-5 (Fresh - Moist Sugar Maple - Hardwood Deciduous Forest Type)
	FODM7 (Fresh - Moist Lowland Deciduous Forest Ecosite)
	FODM7-2 (Fresh - Moist Green Ash - Hardwood Lowland Deciduous Forest Type)
	FODM7-9 (Fresh - Moist Exotic Lowland Deciduous Forest Type)
	FODM8-1 (Fresh - Moist Poplar Deciduous Forest Type)
	FODM8-1 (Fresh - Moist Poplar Deciduous Forest Type)
	MAMM1-2 (Cattail Graminoid Mineral Meadow Marsh Type)
	MEMM3 (Dry - Fresh Mixed Meadow Ecosite)
	SAGM2 (Orchard)
	SWDM2-2 (Green Ash Mineral Deciduous Swamp Type)
	TAGM1 (Coniferous Plantation)
	TAGM3 (Deciduous Plantation)
	TAGM5 (Fencerow)
	THDM2 (Dry - Fresh Deciduous Shrub Thicket Ecosite)
	THDM4 (Dry - Fresh Deciduous Regeneration Thicket Ecosite)
	THDM5 (Fresh - Moist Deciduous Thicket Ecosite)
	THDR1 (Dry - Fresh Calcareous Bedrock Deciduous Thicket Ecosite)
	THMM1 (Dry - Fresh Mixed Regeneration Thicket Ecosite)
	WODM4 (Dry - Fresh Deciduous Woodland Ecosite)
	WODM5 (Fresh - Moist Deciduous Woodland Ecosite)
	WODM5-1 (Fresh - Moist Poplar Deciduous Woodland Type)



Notes

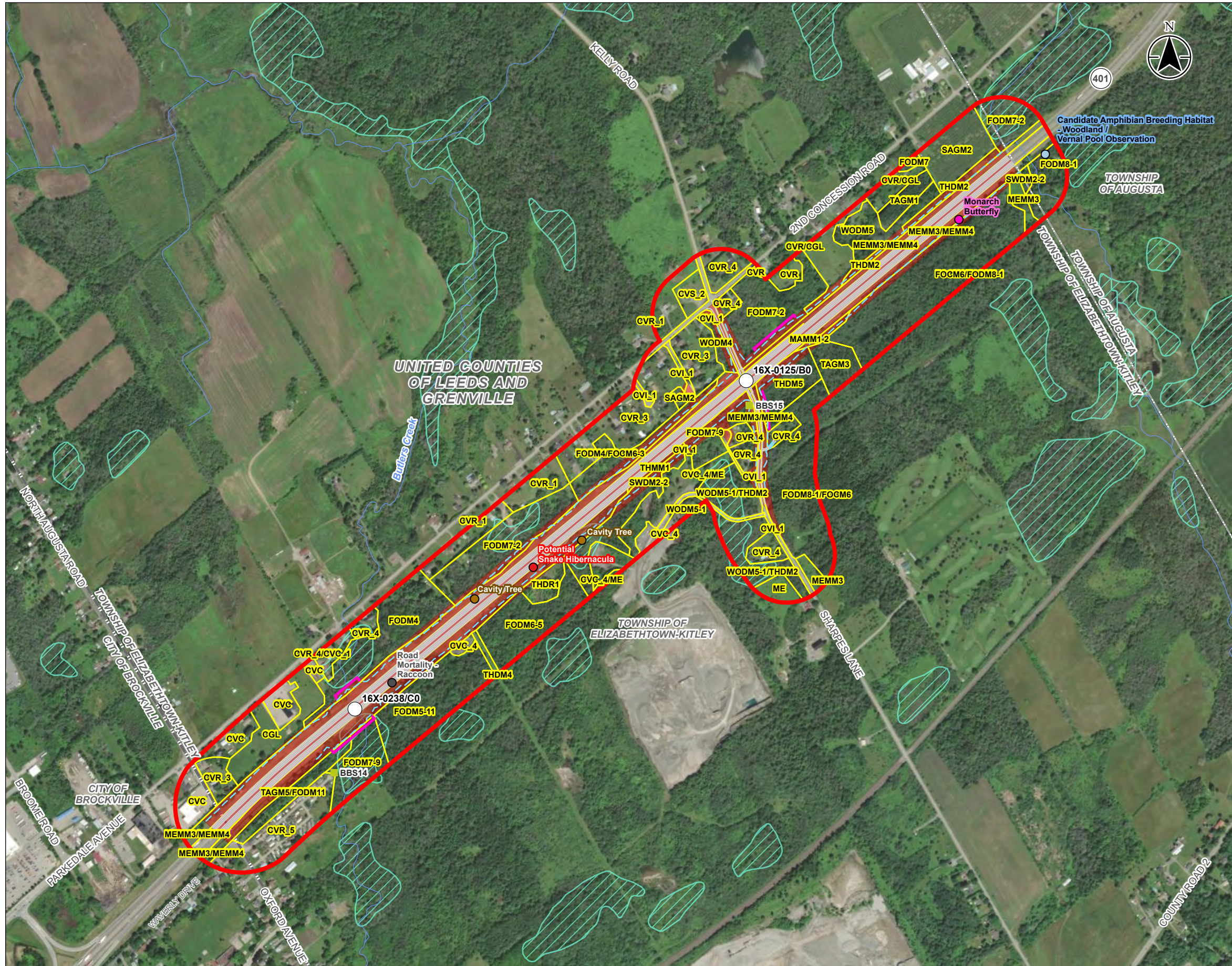
1. Coordinate System: NAD 1983 UTM Zone 18N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.



Project Location: 165001328 REVA
 Prepared by CSTAUFFER on 2025-11-14
 Technical Review by JWH on 2024-10-23

Client/Project: Ministry of Transportation
 Highway 401 Planning Study East of Brockville (GWP 4111-22-00)

Figure No.: **3**
 Title: **Terrestrial Field Investigation**



Legend

Project Data

- Project Structure
- Proposed ROW
- Preferred Design
- Grading
- Study Area
- Preferred Design Impact Area

Existing Conditions

- BBS - Breeding Bird Survey Location
- Candidate Amphibian Breeding Habitat - Woodland and Wetland
- Cavity Trees
- Monarch
- Potential Snake Hibernacula
- Road Mortality

Incidental Observations

- Candidate Amphibian Breeding Habitat - Woodland and Wetland
- Cavity Trees
- Monarch
- Potential Snake Hibernacula
- Road Mortality

ELC

- Watercourse (Permanent)
- Wetland, Unevaluated
- Municipal Boundary, Upper
- Municipal Boundary, Lower

ELC Definition

- CGL (Green Lands)
- CVC (Commercial and Institutional)
- CVC_4 (Extraction)
- CVL_1 (Transportation)
- CVR (Residential)
- CVR_1 (Low Density Residential)
- CVR_3 (Single Family Residential)
- CVR_4 (Rural Property)
- CVR_5 (Trailer Park)
- CVS_2 (Health)
- FODM6 (Naturalized Coniferous Plantation)
- FODM6-3 (Dry - Fresh Scotch Pine Naturalized Coniferous Plantation Type)
- FODM4 (Dry - Fresh Upland Deciduous Forest Ecosite)
- FODM5-11 (Dry - Fresh Sugar Maple - Hardwood Deciduous Forest Type)
- FODM6-5 (Fresh - Moist Sugar Maple - Hardwood Deciduous Forest Type)
- FODM7 (Fresh - Moist Lowland Deciduous Forest Ecosite)
- FODM7-2 (Fresh - Moist Green Ash - Hardwood Lowland Deciduous Forest Type)
- FODM7-9 (Fresh - Moist Exotic Lowland Deciduous Forest Type)
- FODM8-1 (Fresh - Moist Poplar Deciduous Forest Type)
- MAMM1-2 (Cattail Graminoid Mineral Meadow Marsh Type)
- ME (Meadow)
- MEMM3 (Dry - Fresh Mixed Meadow Ecosite)
- SAGM2 (Orchard)
- SWDM2-2 (Green Ash Mineral Deciduous Swamp Type)
- TAGM1 (Coniferous Plantation)
- TAGM3 (Deciduous Plantation)
- TAGM5 (Fencerow)
- THDM2 (Dry - Fresh Deciduous Shrub Thicket Ecosite)
- THDM4 (Dry - Fresh Deciduous Regeneration Thicket Ecosite)
- THDM5 (Fresh - Moist Deciduous Thicket Ecosite)
- THDR1 (Dry - Fresh Calcareous Bedrock Deciduous Thicket Ecosite)
- THMM1 (Dry - Fresh Mixed Regeneration Thicket Ecosite)
- WODM4 (Dry - Fresh Deciduous Woodland Ecosite)
- WODM5 (Fresh - Moist Deciduous Woodland Ecosite)
- WODM5-1 (Fresh - Moist Poplar Deciduous Woodland Type)

Notes

1. Coordinate System: NAD 1983 UTM Zone 18N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.



Project Location: United Counties of Leeds and Grenville
 Prepared by CS on 2025-11-14
 Technical Review by JWH on 2025-09-25

Client/Project: Ministry of Transportation
 Highway 401 Planning Study East of Brockville (GWP 4111-22-00)

Figure No.

4

Title

Impact Assessment

**Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment
Report**
Appendix B Agency Correspondence
February 11, 2026

Appendix B Agency Correspondence





Stantec Consulting Ltd.
100-300 Hagey Boulevard
Waterloo ON N2L 0A4

June 11, 2024

File: 165001328

Attention: Ministry of Natural Resources and Forestry, Kemptville-Kingston District

Sent by email: Kemptville-Kingston.MNRF@ontario.ca

To Whom it May Concern,

Reference: Natural Heritage Information Request – Ministry of Transportation Highway 401 Corridor Mallorytown, Ontario (GWP 4011-22-00 and GWP 4111-22-00)

The Ontario Ministry of Transportation (MTO) has retained Stantec Consulting Ltd. to complete the Preliminary Design (PD) and Environmental Assessment (EA) work for the rehabilitation and/or replacement of bridges, interchange improvements and widening of Highway 401 from four to eight lanes. There are two Study Areas associated with this Assignment (see **Attachment A**):

- GWP 4011-22-00 – 2.8 kilometers (km) west of Mallorytown Road to 2.1 km west of Stewart Boulevard for a total length of approximately 21.6 km.
- GWP 4111-22-00 – 0.75 km east of North Augusta Road to 3.3 km west of Maitland Road for a total length of approximately 2.6 km.

The purpose of this letter is to request your input with respect to existing conditions within the Study Area, and to identify issues, concerns, or approval requirements that the Ministry of Natural Resources and Forestry (MNRF) may have.

Stantec has completed a search of the Natural Heritage Information Center (NHIC) database, online wildlife atlases, Land Information Ontario (LIO), AgMaps, Department of Fisheries and Oceans (DFO) Aquatic Species at Risk (SAR) mapping, and other information sources outlined within the *Client's Guide to Preliminary Screening for Species at Risk* (MECP 2019). The results are summarized below under separate headers for fish and fish habitat, significant species, and natural features and areas. We are requesting updates and/or corrections to the information, as available. This information is required to complete our natural heritage review for the project.

Fish And Fish Habitat

Background information from the LIO database and DFO Aquatic SAR Mapping provided information for some of the watercourses within the Study Areas. Stantec has also completed a spring fish habitat and fish community assessment (MNRF Licence No. KEKI-2024-FWCA-00240) at watercourses within the project limits where there was permission to enter, and it was safe to access (**Table 1, Table 2, and Attachment A**). As per Step 2 of the MTO/DFO/MNRF Fisheries Protocol, we are requesting confirmation or updates to the following information related to fish and fish habitat in the Study Area:

- Review the attached information for mapped watercourses and provide updates, where applicable (e.g., thermal regime, flow regime, fish species data from LIO).
- Provide MNRF Management Objectives, as available.

Reference: Natural Heritage Information Request – Ministry of Transportation Highway 401 Corridor Mallorytown, Ontario (GWP 4011-22-00 and GWP 4111-22-00)

- Provide the in-water work timing window for each watercourse, based on the information provided.

A summary of the information we obtained from available sources is provided in **Table 1** (see **Attachment A** for watercourse crossings). A Word version of the table is also provided to facilitate the update of information by your office.

Significant Species

Records of SAR and provincially rare species that overlap with the two Study Areas are summarized below:

- Snapping Turtle
- Blanding's Turtle
- Eastern Musk Turtle
- Midland Painted Turtle
- Northern Map Turtle
- Western Chorus Frog
- Gray Ratsnake
- Eastern Ribbonsnake
- Eastern Milksnake
- Piping Plover
- Bank Swallow
- Barn Swallow
- Bobolink
- Common Nighthawk
- Eastern Wood-Pewee
- Eastern Meadowlark
- Canada Warbler
- Cerulean Warbler
- Golden-Winged Warbler
- Wood Thrush
- Least Bittern
- Little Brown Myotis
- Northern Myotis
- Tr-colored Bat
- Monarch
- Black Ash
- Butternut
- Broad Beech Fern
- Field Sedge
- Olney's Grimmia
- Pitch Pine
- A Rim Lichen
- A Lichen
- Downy Goldenrod
- Southern Wild Rice
- Panicked Hawkweed
- Woodland Muhly
- American Eel
- Lake Sturgeon
- Grass Pickerel
- Silver Lamprey
- Pugnose Shiner
- Greater Redhorse
- Eastern Pondmussel

Natural Features and Areas

The presence of natural features and areas that overlap with the Study Area are shown in **Attachment A**. This includes provincially designated features such as Provincially Significant Wetlands (PSWs), Areas of Natural and Scientific Interest (ANSIs), and other features such as conservation areas, locally significant wetlands, woodlands, and valleylands. The Frontenac Arch UNESCO World Biosphere Reserve also resides in the Study Area, along with the Thousand Islands National Park.

Reference: Natural Heritage Information Request – Ministry of Transportation Highway 401 Corridor Mallorytown, Ontario (GWP 4011-22-00 and GWP 4111-22-00)

Table 1: Fish and Fish Habitat MNRF Information Request – Highway 401 and Mallorytown (GWP 4011-22-00)

Location (Crossing ID, see Attachment A)	Ainley Group Report Crossing ID (Ainley Group 2024)	Waterbody Name (MNRF 2024a, MNRF 2024b)	Waterbody Coordinates (Lat/Long)	Flow Regime (MNRF 2024b; Ainley Group 2024; Stantec 2024)	Thermal Regime (MNRF 2024b; Ainley Group 2024)	Fish Habitat Present	Habitat - Substrate (Stantec)	Habitat - Vegetation (Stantec)	Fish Species Present (MNRF 2024b, DFO 2024, Stantec 2024)	MNRF Fisheries Management Objective	In-water Works Timing Window (Ainley Group 2024)
YG_10+146	CV-0401-12298; CV-0401-010183	Unnamed Tributary of La Rue creek	44.453916 -75.886445	<u>MNRF:</u> Permanent <u>Ainley Group:</u> Permanent	<u>MNRF:</u> No data <u>Ainley Group:</u> Warm/cool	Direct	Clay, muck, silt, detritus	<u>Instream:</u> Slender Naiad, Water lily, Duckweed, Canada waterweed, Narrow-Leaved Cattail, Phragmites <u>Riparian:</u> Grasses, Narrow-Leaved Cattail, Mixed Forest	<u>MNRF:</u> No data. <u>Stantec 2024:</u> YOY Sunfish sp., Pumpkinseed, Northern Redbelly Dace		<u>Ainley Group:</u> July 1 to March 14
YG_10+459	N/A	Unnamed Tributary of La Rue creek	44.456167 -75.883729	<u>MNRF:</u> Permanent	<u>MNRF:</u> No data	Direct	Clay, detritus, silt	<u>Instream:</u> Duckweed, Narrow-Leaved Cattail, <u>Riparian:</u> Grasses, Mixed Forest	<u>MNRF 2015:</u> Creek Chub, Pumpkinseed <u>Stantec 2024:</u> Central Mudminnow, Creek Chub, Fathead Minnow, Brook Stickleback, YOY Sunfish sp.		
YG_11+025	N/A	Unnamed Tributary of La Rue creek	44.60423 -75.880276	<u>MNRF:</u> Permanent <u>Stantec:</u> Intermittent	<u>MNRF:</u> No data	Indirect (WBL) Direct (EBL)	Silt, bedrock	<u>Instream:</u> Narrow-Leaved Cattail <u>Riparian:</u> Grasses, Mixed Forest, pasture	<u>MNRF 2015:</u> Creek Chub, Northern Redbelly Dace <u>Stantec 2024:</u> YOY Sunfish sp.		
YG_11+208	N/A	Unnamed Tributary of La Rue creek	44.461661 -75.879244	<u>MNRF:</u> Permanent	<u>MNRF:</u> No data	Direct	Sand, silt, clay, detritus, cobble, bedrock, boulders	<u>Instream:</u> Narrow-Leaved Cattail <u>Riparian:</u> Grasses	<u>MNRF 2015:</u> No fish captured. <u>Stantec 2024:</u> Central Mudminnow, Brook Stickleback		
YG_11+468	N/A	Unnamed Tributary	44.463907 -75.877551	<u>MNRF:</u> No data <u>Stantec:</u> Intermittent	<u>MNRF:</u> No data	No fish habitat Damaged/buried culverts WBL, no feature EBL.	Silt, sand, gravel	<u>Instream:</u> Duckweed, grasses <u>Riparian:</u> Grasses, thicket	<u>MNRF:</u> No data. <u>Stantec 2024:</u> No fish captured.		N/A

Reference: Natural Heritage Information Request – Ministry of Transportation Highway 401 Corridor Mallorytown, Ontario (GWP 4011-22-00 and GWP 4111-22-00)

Location (Crossing ID, see Attachment A)	Ainley Group Report Crossing ID (Ainley Group 2024)	Waterbody Name (MNRF 2024a, MNRF 2024b)	Waterbody Coordinates (Lat/Long)	Flow Regime (MNRF 2024b; Ainley Group 2024; Stantec 2024)	Thermal Regime (MNRF 2024b; Ainley Group 2024)	Fish Habitat Present	Habitat - Substrate (Stantec)	Habitat - Vegetation (Stantec)	Fish Species Present (MNRF 2024b, DFO 2024, Stantec 2024)	MNRF Fisheries Management Objective	In-water Works Timing Window (Ainley Group 2024)
YG_11+940	N/A	Unnamed Tributary	44.467984 -75.874145	<u>MNRF:</u> Permanent	<u>MNRF:</u> No data	Direct	Clay, gravel, silt, muck	<u>Instream:</u> Narrow-Leaved Cattail, duckweed, grasses <u>Riparian:</u> Deciduous forest	<u>MNRF:</u> No data. <u>Stantec 2024:</u> Brook Stickleback		
YG_12+134	N/A	Unnamed Tributary	44.468998 -75.873196	<u>MNRF:</u> Permanent	<u>MNRF:</u> No data	Direct	Silt, muck, clay, boulder	<u>Instream:</u> Duckweed, Narrow-Leaved Cattail, grasses <u>Riparian:</u> Grasses, Narrow-Leaved Cattail, thicket	<u>MNRF:</u> No data. <u>Stantec 2024:</u> Brook Stickleback		
YG_CR5_EB-NS_1a	CV-0401-001036	Unnamed Tributary	44.471282 -75.871511	<u>MNRF:</u> No data <u>Ainley Group:</u> Intermittent <u>Stantec:</u> Intermittent	<u>MNRF:</u> No data <u>Ainley Group:</u> warm/cool	Indirect	Silt, muck	<u>Instream:</u> Duckweed, Narrow-Leaved Cattail, <u>Riparian:</u> Grasses	<u>MNRF:</u> No data. <u>Stantec 2024:</u> No fish community assessment completed as water only present within culvert (not accessible)		<u>Ainley Group:</u> July 1 to March 14
YG_CR5_EB-NS_1b	CV-0401-001037	N/A - manhole only, not feature present	44.471062 -75.871411	<u>MNRF:</u> No data <u>Ainley Group:</u> Ephemeral <u>Stantec:</u> No feature	<u>MNRF:</u> No data <u>Ainley Group:</u> warm/cool	<u>Ainley Group:</u> Indirect <u>Stantec:</u> Not fish habitat	N/A	N/A	<u>MNRF:</u> No data. <u>Stantec 2024:</u> Manhole, no fish community assessment completed.		<u>Ainley Group:</u> July 1 to March 14 N/A
YG_CR5_NS-EB	CV-0401-001038	Tributary of Unnamed Wetland	44.472464 -75.870546	<u>MNRF:</u> No data <u>Ainley Group:</u> Intermittent <u>Stantec:</u> Ephemeral/ Intermittent	<u>MNRF:</u> No data <u>Ainley Group:</u> warm/cool	<u>Ainley Group:</u> Indirect <u>Stantec:</u> Not fish habitat	Silt	<u>Instream:</u> Grasses <u>Riparian:</u> Grasses	<u>MNRF:</u> No data. <u>Stantec 2024:</u> No fish community assessment completed due to insufficient water.		<u>Ainley Group:</u> July 1 to March 14 N/A
YG_CR5_N	N/A	Unnamed Tributary	44.476667 -75.871609	<u>MNRF:</u> No data <u>Stantec:</u> Intermittent	<u>MNRF:</u> No data	Direct	Silt, muck, detritus	<u>Instream:</u> Narrow-Leaved Cattail, Grasses, Spike Rush <u>Riparian:</u> Grasses	<u>MNRF:</u> No data. <u>Stantec 2024:</u> Brook Stickleback		

Reference: Natural Heritage Information Request – Ministry of Transportation Highway 401 Corridor Mallorytown, Ontario (GWP 4011-22-00 and GWP 4111-22-00)

Location (Crossing ID, see Attachment A)	Ainley Group Report Crossing ID (Ainley Group 2024)	Waterbody Name (MNRF 2024a, MNRF 2024b)	Waterbody Coordinates (Lat/Long)	Flow Regime (MNRF 2024b; Ainley Group 2024; Stantec 2024)	Thermal Regime (MNRF 2024b; Ainley Group 2024)	Fish Habitat Present	Habitat - Substrate (Stantec)	Habitat - Vegetation (Stantec)	Fish Species Present (MNRF 2024b, DFO 2024, Stantec 2024)	MNRF Fisheries Management Objective	In-water Works Timing Window (Ainley Group 2024)
YG_CR5_S	N/A	Unnamed Tributary	44.473294 -75.868903	<u>MNRF:</u> No data <u>Stantec:</u> Ephemeral/ Intermittent	<u>MNRF:</u> No data	Not fish habitat	Silt	<u>Instream:</u> Terrestrial Vegetation, Moss <u>Riparian:</u> Thicket	<u>MNRF:</u> No data. <u>Stantec 2024:</u> No fish community assessment completed due to insufficient water, no connectivity to any feature.		N/A
YG_CR5_EB-NS_2	CV-0401-001039	Tributary of Unnamed Wetland	44.472243 -75.868011	<u>MNRF:</u> No data <u>Ainley Group:</u> Intermittent <u>Stantec:</u> Intermittent, refuge pool at culvert	<u>MNRF:</u> No data <u>Ainley Group:</u> warm/cool	<u>Ainley Group:</u> Indirect <u>Stantec:</u> Direct	Silt, muck, clay	<u>Instream:</u> Chara, Narrow-Leaved Cattail <u>Riparian:</u> Grasses	<u>MNRF:</u> No data. <u>Stantec 2024:</u> Central Mudminnow		<u>Ainley Group:</u> July 1 to March 14
YG_13+420 Equalization drainage from median into EBL ditchline	N/A	Unnamed Tributary	44.479058 -75.864820	<u>MNRF:</u> No data	<u>MNRF:</u> No data	TBD	Silt, gravel, sand	<u>Instream:</u> Narrow-Leaved Cattail <u>Riparian:</u> Grasses	<u>MNRF:</u> No data. <u>Stantec 2024:</u> No fish captured.		
YG_13+757 Equalization drainage from median to EBL ditch, no culvert WBL	N/A	Unnamed Tributary	44.481629 -75.862491	<u>MNRF:</u> No data <u>Stantec:</u> Ephemeral/ Intermittent	<u>MNRF:</u> No data	Direct	Silt	<u>Instream:</u> Narrow-Leaved Cattail, Watercress, Water Plantain <u>Riparian:</u> Grasses	<u>MNRF 2018:</u> Brook Stickleback, Central Mudminnow, Creek Chub, Finescale Dace <u>Stantec 2024:</u> Brook Stickleback		
YG_14+323	N/A	Unnamed Tributary	44.485589 -75.858642	<u>MNRF:</u> Permanent	<u>MNRF:</u> No data	Direct	Bedrock, detritus, muck, silt, cobble, gravel	<u>Instream:</u> Narrow-Leaved Cattail, Watercress, <u>Riparian:</u> Deciduous forest	<u>MNRF:</u> No data. <u>Stantec 2024:</u> Brook Stickleback, Central Mudminnow, Creek Chub		

Reference: Natural Heritage Information Request – Ministry of Transportation Highway 401 Corridor Mallorytown, Ontario (GWP 4011-22-00 and GWP 4111-22-00)

Location (Crossing ID, see Attachment A)	Ainley Group Report Crossing ID (Ainley Group 2024)	Waterbody Name (MNRF 2024a, MNRF 2024b)	Waterbody Coordinates (Lat/Long)	Flow Regime (MNRF 2024b; Ainley Group 2024; Stantec 2024)	Thermal Regime (MNRF 2024b; Ainley Group 2024)	Fish Habitat Present	Habitat - Substrate (Stantec)	Habitat - Vegetation (Stantec)	Fish Species Present (MNRF 2024b, DFO 2024, Stantec 2024)	MNRF Fisheries Management Objective	In-water Works Timing Window (Ainley Group 2024)
YG_OR_WB_1	CV-0401-001475	Unnamed Tributary of Little Mud Creek	44.487681 -75.857628	<u>MNRF:</u> No data <u>Ainley Group:</u> Permanent	<u>MNRF:</u> No data <u>Ainley Group:</u> Warm/cool	Direct	Silt, clay, bedrock	<u>Instream:</u> Narrow- Leaved Cattail, Watercress, Water Speedwell <u>Riparian:</u> Deciduous forest	<u>MNRF:</u> No data. <u>Stantec 2024:</u> Creek Chub, Brook Stickleback		<u>Ainley Group:</u> July 1 to March 14
YG_OR_WB_2	CV-04010991474	Unnamed Tributary of Little Mud Creek	44.490214 -75.855119	<u>MNRF:</u> No data <u>Ainley Group:</u> Ephemeral <u>Stantec:</u> No feature.	<u>MNRF:</u> No data <u>Ainley Group:</u> Warm/cool	<u>Ainley Group:</u> Indirect <u>Stantec:</u> Not fish habitat	Silt	N/A	<u>MNRF:</u> No data. <u>Stantec 2024:</u> Drain cover with no obvious input or output, no fish community assessment completed.		<u>Ainley Group:</u> July 1 to March 14 N/A
YG_15+058	N/A	Unnamed Tributary of Little Mud Creek	44.491261 -75.852429	<u>MNRF:</u> Permanent	<u>MNRF:</u> No dat	Direct	Cobble, gravel, sand, silt	<u>Instream:</u> Narrow- Leaved Cattail <u>Riparian:</u> Grasses, Deciduous Forest	<u>MNRF:</u> No data. <u>Stantec 2024:</u> Creek Chub (spawning adults), Brook Stickleback		
YG_15+430	N/A	Unnamed Tributary of Little Mud Creek	44.493897 -75.849586	<u>MNRF:</u> No data <u>Stantec:</u> Intermittent	<u>MNRF:</u> No data	Direct	Silt, sand, detritus	<u>Instream:</u> Narrow- Leaved Cattails, Watercress, Duckweed, Phragmites, Water Speedwell <u>Riparian:</u> Narrow-Leaved Cattail Marsh, Coniferous Forest	<u>MNRF 2018:</u> Brook Stickleback, Central Mudminnow, Creek Chub, Fathead Minnow <u>Stantec 2024:</u> Northern Redbelly Dace, Creek Chub, Brook Stickleback, Fathead Minnow		

Reference: Natural Heritage Information Request – Ministry of Transportation Highway 401 Corridor Mallorytown, Ontario (GWP 4011-22-00 and GWP 4111-22-00)

Location (Crossing ID, see Attachment A)	Ainley Group Report Crossing ID (Ainley Group 2024)	Waterbody Name (MNRF 2024a, MNRF 2024b)	Waterbody Coordinates (Lat/Long)	Flow Regime (MNRF 2024b; Ainley Group 2024; Stantec 2024)	Thermal Regime (MNRF 2024b; Ainley Group 2024)	Fish Habitat Present	Habitat - Substrate (Stantec)	Habitat - Vegetation (Stantec)	Fish Species Present (MNRF 2024b, DFO 2024, Stantec 2024)	MNRF Fisheries Management Objective	In-water Works Timing Window (Ainley Group 2024)
YG_15+675	N/A	Little Mud Creek	44.495261 -75.848131	<u>MNRF:</u> Permanent	<u>MNRF:</u> No data	Direct	Silt, muck, detritus	<u>Instream:</u> Narrow-Leaved Cattails, Watercress, Water Speedwell <u>Riparian:</u> Grasses, Narrow-Leaved Cattail Marsh	<u>MNRF 2018:</u> Brook Stickleback, Central Mudminnow, Creek Chub, Finescale Dace <u>DFO 2024:</u> Grass Pickerel <u>Stantec 2024:</u> Central Mudminnow		
YG_15+823	CV-0401-001477	Unnamed Tributary of Little Mud Creek	44.496341 -75.846851	<u>MNRF:</u> No data <u>Ainley Group:</u> Intermittent <u>Stantec:</u> Intermittent	<u>MNRF:</u> No data <u>Ainley Group:</u> Warm/cool	<u>Ainley Group:</u> Direct <u>Stantec:</u> Direct	Silt, muck, clay, detritus	<u>Instream:</u> Narrow-Leaved Cattails, Watercress <u>Riparian:</u> Grasses, Mixed Forest	<u>MNRF:</u> No data. <u>Stantec 2024:</u> Brook Stickleback		<u>Ainley Group:</u> July 1 to March 14
YG_16+290/ YG_16+190 Feature not visible on WBL, culvert on EBL heavily damaged.	CV-0401-001478	Median Drainage to Unnamed Tributary of Little Mud Creek	44.499143 -75.844950	<u>MNRF:</u> No data <u>Ainley Group:</u> Intermittent <u>Stantec:</u> Intermittent	<u>MNRF:</u> No data <u>Ainley Group:</u> Warm/cool	<u>Ainley Group:</u> Indirect <u>Stantec:</u> Direct	Silt, muck	<u>Instream:</u> Duckweed, Narrow-Leaved Cattails <u>Riparian:</u> Grasses, Mixed Forest	<u>MNRF:</u> No data. <u>Stantec 2024:</u> Brook Stickleback		<u>Ainley Group:</u> July 1 to March 14
YG_17+452	CV-0401-012243; 001458	N/A	44.507994 -75.835084	<u>MNRF:</u> No data <u>Ainley Group:</u> Dry <u>Stantec:</u> Dry	<u>MNRF:</u> No data	<u>Ainley Group:</u> Not fish habitat. <u>Stantec:</u> Not fish habitat.	Silt	<u>Instream:</u> N/A <u>Riparian:</u> Grasses	<u>MNRF:</u> No data. <u>Stantec 2024:</u> No feature present.		N/A
YG_18+240	N/A	Jones Creek/ Jones Creek Municipal Drain	44.514103 -75.830987	<u>MNRF:</u> Permanent	<u>MNRF:</u> No data	Direct	Assessed at CR2 crossing: Boulders	Assessed at CR2 crossing: <u>Instream:</u> None <u>Riparian:</u> Mixed Forest	<u>MNRF:</u> No data <u>DFO 2024:</u> Grass Pickerel <u>Stantec 2024:</u> Central Stoneroller, White Sucker		

Reference: Natural Heritage Information Request – Ministry of Transportation Highway 401 Corridor Mallorytown, Ontario (GWP 4011-22-00 and GWP 4111-22-00)

Location (Crossing ID, see Attachment A)	Ainley Group Report Crossing ID (Ainley Group 2024)	Waterbody Name (MNRF 2024a, MNRF 2024b)	Waterbody Coordinates (Lat/Long)	Flow Regime (MNRF 2024b; Ainley Group 2024; Stantec 2024)	Thermal Regime (MNRF 2024b; Ainley Group 2024)	Fish Habitat Present	Habitat - Substrate (Stantec)	Habitat - Vegetation (Stantec)	Fish Species Present (MNRF 2024b, DFO 2024, Stantec 2024)	MNRF Fisheries Management Objective	In-water Works Timing Window (Ainley Group 2024)
YG_18+560	CV-0401-001469	Unnamed Tributary to Jones Creek	44.515904 -75.826162	<u>MNRF:</u> Permanent <u>Ainley Group:</u> Permanent	<u>MNRF:</u> No data <u>Ainley Group:</u> Warm/cool	Direct	Stantec not assessed at 401 due to no safe access.		<u>MNRF:</u> No data <u>DFO 2024:</u> Grass Pickerel <u>Stantec 2024:</u> No fish community assessment due to no safe access to watercourse.		<u>Ainley Group:</u> July 1 to March 14
YG_18+960	N/A	Unnamed Tributary to Jones Creek	44.517014 -75.821268	<u>MNRF:</u> Permanent	<u>MNRF:</u> No data	Direct	Stantec not assessed at 401 due to no safe access.		<u>MNRF 2019:</u> Central Mudminnow <u>DFO 2024:</u> Grass Pickerel <u>Stantec 2024:</u> No fish community assessment due to no safe access to watercourse.		
YG_19+273	CV-0401-001460	Unnamed Tributary to MacIlhennys Creek	44.517852 -75.817661	<u>MNRF:</u> No data <u>Ainley Group:</u> Intermittent	<u>MNRF:</u> No data <u>Ainley Group:</u> Warm/cool	Direct MNRF confirmed Northern Pike spawning site.	Stantec not assessed at 401 due to no safe access.		<u>MNRF 2024:</u> Northern Pike <u>DFO 2024:</u> Eastern Pondmussel <u>Stantec 2024:</u> No fish community assessment due to no safe access to watercourse.		<u>Ainley Group:</u> July 1 to March 14
YG_19+325	CV-0401-001483	N/A	44.517844 -75.517844	<u>MNRF:</u> No data <u>Ainley Group:</u> Dry <u>Stantec:</u> Dry	<u>MNRF:</u> No data	<u>Ainley Group:</u> Not fish habitat. <u>Stantec:</u> Not fish habitat.	Silt	<u>Instream:</u> N/A <u>Riparian:</u> Grasses	<u>MNRF:</u> No data. <u>Stantec 2024:</u> No feature present.		

Reference: Natural Heritage Information Request – Ministry of Transportation Highway 401 Corridor Mallorytown, Ontario (GWP 4011-22-00 and GWP 4111-22-00)

Location (Crossing ID, see Attachment A)	Ainley Group Report Crossing ID (Ainley Group 2024)	Waterbody Name (MNRF 2024a, MNRF 2024b)	Waterbody Coordinates (Lat/Long)	Flow Regime (MNRF 2024b; Ainley Group 2024; Stantec 2024)	Thermal Regime (MNRF 2024b; Ainley Group 2024)	Fish Habitat Present	Habitat - Substrate (Stantec)	Habitat - Vegetation (Stantec)	Fish Species Present (MNRF 2024b, DFO 2024, Stantec 2024)	MNRF Fisheries Management Objective	In-water Works Timing Window (Ainley Group 2024)
YG_19+920	N/A	MacIlhennys Creek	44.519332 -75.809800	<u>MNRF:</u> Permanent	<u>MNRF:</u> No data	Direct	Stantec not assessed at 401 due to no safe access.		<u>MNRF:</u> No data <u>DFO 2024:</u> Eastern Pondmussel <u>Stantec 2024:</u> No fish community assessment due to no safe access to watercourse.		
YG_20+087	CV-0401-001461	Unnamed Tributary of MacIlhennys Creek	44.519888 -75.807822	<u>MNRF:</u> No data <u>Ainley Group:</u> Permanent	<u>MNRF:</u> No data <u>Ainley Group:</u> Warm/cool	<u>Ainley Group:</u> Indirect	Stantec not assessed at 401 due to no safe access.		<u>MNRF:</u> No data <u>DFO 2024:</u> Eastern Pondmussel <u>Stantec 2024:</u> No fish community assessment due to no safe access to watercourse.		<u>Ainley Group:</u> July 1 to March 14
YG_21+135	N/A	Unnamed Tributary to St. Lawrence	44.519075 -75.795464	<u>MNRF:</u> No data	<u>MNRF:</u> No data	Direct	Silt, detritus	<u>Instream:</u> Narrow-Leaved Cattail, Water Speedwell, Grasses, Duckweed <u>Riparian:</u> Thicket, Narrow-Leaved Cattail Marsh	<u>MNRF:</u> No data <u>Stantec 2024:</u> Brook Stickleback, Northern Redbelly Dace, Central Mudminnow, Fathead Minnow		
YG_SS_9+902	CV-0401-001548	N/A	44.521241 -75.803058	<u>MNRF:</u> No data <u>Ainley Group:</u> Dry <u>Stantec:</u> Dry	<u>MNRF:</u> No data	<u>Ainley Group:</u> Not fish habitat. <u>Stantec:</u> Not fish habitat.	Silt	<u>Instream:</u> N/A <u>Riparian:</u> Grasses	<u>MNRF:</u> No data. <u>Stantec 2024:</u> No feature present.		N/A

Reference: Natural Heritage Information Request – Ministry of Transportation Highway 401 Corridor Mallorytown, Ontario (GWP 4011-22-00 and GWP 4111-22-00)

Location (Crossing ID, see Attachment A)	Ainley Group Report Crossing ID (Ainley Group 2024)	Waterbody Name (MNRF 2024a, MNRF 2024b)	Waterbody Coordinates (Lat/Long)	Flow Regime (MNRF 2024b; Ainley Group 2024; Stantec 2024)	Thermal Regime (MNRF 2024b; Ainley Group 2024)	Fish Habitat Present	Habitat - Substrate (Stantec)	Habitat - Vegetation (Stantec)	Fish Species Present (MNRF 2024b, DFO 2024, Stantec 2024)	MNRF Fisheries Management Objective	In-water Works Timing Window (Ainley Group 2024)
ET_22+070	N/A	Unnamed Tributary to St. Lawrence	44.520524 -75.782107	<u>MNRF:</u> Permanent	<u>MNRF:</u> No data	Direct	Boulder, cobble, silt, clay	<u>Instream:</u> Water Smartweed, Horsetail <u>Riparian:</u> Deciduous Forest	<u>MNRF 2018:</u> Book Stickleback, Central Mudminnow, Pumpkinseed <u>Stantec 2024:</u> No fish community assessment due to no safe access to watercourse.		
ET_10+893	CV-0401-012244, 002214, 002245	N/A	44.525942 -75.771069	<u>MNRF:</u> No data <u>Ainley Group:</u> Dry <u>Stantec:</u> Dry	<u>MNRF:</u> No data	<u>Ainley Group:</u> Not fish habitat. <u>Stantec:</u> Not fish habitat.	Silt	<u>Instream:</u> N/A <u>Riparian:</u> Grasses	<u>MNRF:</u> No data. <u>Stantec 2024:</u> No feature present.		N/A
EL_11+275	CV-0401-001579	N/A	44.528552 -75.768663	<u>MNRF:</u> No data <u>Ainley Group:</u> Dry <u>Stantec:</u> Dry	<u>MNRF:</u> No data	<u>Ainley Group:</u> Not fish habitat. <u>Stantec:</u> Not fish habitat.	Silt	<u>Instream:</u> N/A <u>Riparian:</u> Grasses	<u>MNRF:</u> No data. <u>Stantec 2024:</u> No feature present.		N/A
ET_11+946	CV-401-001470	Unnamed Tributary to Cole Creek	44.534531 -75.767426	<u>MNRF:</u> Permanent <u>Ainley Group:</u> Permanent <u>Stantec:</u> Intermittent	<u>MNRF:</u> No data <u>Ainley Group:</u> Warmwater	Direct	Gravel, sand, silt, muck, detritus	<u>Instream:</u> Narrow-Leaved Cattails, Water Smartweed <u>Riparian:</u> Marsh, thicket	<u>MNRF 2018:</u> Book Stickleback, Central Mudminnow, Creek Chub, Fathead Minnow, Finescale Dace <u>Stantec 2024:</u> Creek Chub YOY, Brook Stickleback		<u>Ainley Group:</u> July 1 to March 14
ET_12+417	N/A	Unnamed Tributary to Cole Creek	44.538818 -75.767743	<u>MNRF:</u> Permanent <u>Stantec:</u> Intermittent	<u>MNRF:</u> No data	Direct	Silt, muck, detritus	<u>Instream:</u> Narrow-Leaved Cattails, Marsh Marigold <u>Riparian:</u> Marsh, Mixed Forest	<u>MNRF:</u> No data. <u>Stantec 2024:</u> Brook Stickleback, Central Mudminnow		

Reference: Natural Heritage Information Request – Ministry of Transportation Highway 401 Corridor Mallorytown, Ontario (GWP 4011-22-00 and GWP 4111-22-00)

Location (Crossing ID, see Attachment A)	Ainley Group Report Crossing ID (Ainley Group 2024)	Waterbody Name (MNRF 2024a, MNRF 2024b)	Waterbody Coordinates (Lat/Long)	Flow Regime (MNRF 2024b; Ainley Group 2024; Stantec 2024)	Thermal Regime (MNRF 2024b; Ainley Group 2024)	Fish Habitat Present	Habitat - Substrate (Stantec)	Habitat - Vegetation (Stantec)	Fish Species Present (MNRF 2024b, DFO 2024, Stantec 2024)	MNRF Fisheries Management Objective	In-water Works Timing Window (Ainley Group 2024)
ET_12+685 No visible culvert	N/A	Cole Creek	44.541335 -75.768001	<u>MNRF:</u> No data	<u>MNRF:</u> No data	Direct (WBL)	Silt, muck, detritus	<u>Instream:</u> Narrow- Leaved Cattails <u>Riparian:</u> Narrow- Leaved Cattail Marsh, Mixed Forest	<u>MNRF:</u> No data. <u>Stantec 2024:</u> Brook Stickleback		
ET_13+732	N/A	Unnamed Tributary to Grants Creek	44.550028 -75.764738	<u>MNRF:</u> No data <u>Stantec:</u> Intermittent	<u>MNRF:</u> No data	TBD	Silt, muck, clay	<u>Instream:</u> Narrow- Leaved Cattails, grasses <u>Riparian:</u> Narrow- Leaved Cattail Marsh, Mixed Forest	<u>MNRF:</u> No data. <u>Stantec 2024:</u> No fish captured.		
ET_14+224	N/A	Unnamed Tributary to Grants Creek	44.553311 -75.761098	<u>MNRF:</u> Permanent	<u>MNRF:</u> No data	Direct	Silt, clay, muck, detritus	<u>Instream:</u> Narrow- Leaved Cattails, Water Lily <u>Riparian:</u> Narrow- Leaved Cattail Marsh, Mixed Forest	<u>MNRF:</u> No data. <u>Stantec 2024:</u> Central Mudminnow, Creek Chub, Brook Stickleback, Fathead Minnow		
ET_15+073	N/A	Grants Creek	44.558479 -75.753030	<u>MNRF:</u> Permanent <u>Stantec:</u> Intermittent	<u>MNRF:</u> No data	Direct	Silt, clay, muck, detritus	<u>Instream:</u> Narrow- Leaved Cattail <u>Riparian:</u> Narrow- Leaved Cattail Marsh	<u>MNRF:</u> No data. <u>Stantec 2024:</u> Central Mudminnow		
ET_15+332	N/A	Unnamed Tributary to Grants Creek	44.560013 -75.750563	<u>MNRF:</u> Permanent <u>Stantec:</u> Intermittent	<u>MNRF:</u> No data	Direct	Silt, muck	<u>Instream:</u> Narrow- Leaved Cattail <u>Riparian:</u> Narrow- Leaved Cattail Marsh, Mixed Forest	<u>MNRF:</u> No data. <u>Stantec 2024:</u> Brook Stickleback		
ET_16+800	N/A	Grants Creek	44.569854 -75.738258	<u>MNRF:</u> Permanent	<u>MNRF:</u> No data	Direct	Boulder, silt, clay	<u>Instream:</u> Narrow- Leaved Cattail, Phragmites <u>Riparian:</u> Grasses, Mixed Forest, Deciduous Swamp	<u>MNRF:</u> No data. <u>Stantec 2024:</u> Creek Chub, Northern Redbelly Dace, Central Mudminnow, Brook Stickleback		

Reference: Natural Heritage Information Request – Ministry of Transportation Highway 401 Corridor Mallorytown, Ontario (GWP 4011-22-00 and GWP 4111-22-00)

Location (Crossing ID, see Attachment A)	Ainley Group Report Crossing ID (Ainley Group 2024)	Waterbody Name (MNRF 2024a, MNRF 2024b)	Waterbody Coordinates (Lat/Long)	Flow Regime (MNRF 2024b; Ainley Group 2024; Stantec 2024)	Thermal Regime (MNRF 2024b; Ainley Group 2024)	Fish Habitat Present	Habitat - Substrate (Stantec)	Habitat - Vegetation (Stantec)	Fish Species Present (MNRF 2024b, DFO 2024, Stantec 2024)	MNRF Fisheries Management Objective	In-water Works Timing Window (Ainley Group 2024)
ET_18+538	N/A	Unnamed Tributary to Grants Creek	44.584020 -75.729444	<u>MNRF:</u> No data <u>Stantec:</u> Permanent	<u>MNRF:</u> No data	Direct	Cobble, sand, silt, clay, detritus	<u>Instream:</u> Narrow-Leaved Cattail, Phragmites <u>Riparian:</u> Thicket, Deciduous Forest	<u>MNRF:</u> No data. <u>Stantec 2024:</u> Brook Stickleback, Creek Chub		
ET_19+205	N/A	Unnamed Tributary to Grants Creek	44.587313 -75.722375	<u>MNRF:</u> Permanent	<u>MNRF:</u> No data	Direct	Stantec not assessed at 401 due to no safe access.		<u>MNRF:</u> No data <u>Stantec 2024:</u> No fish community assessment due to no safe access to watercourse.		

Notes:

- ROW - right-of-way
- N/A - not applicable
- YOY - young-of-year
- EBL – Eastbound Lane
- WBL – Westbound Lane

Table 2: Fish and Fish Habitat MNRF Information Request – Highway 401 and Mallorytown (GWP 4111-22-00)

Location (Crossing ID, see Attachment A)	Waterbody Name (MNRF 2024a, MNRF 2024b)	Waterbody Coordinates (Lat/Long)	Flow Regime (MNRF 2024b; Stantec 2024)	Thermal Regime (MNRF 2024b)	Fish Habitat Present	Habitat - Substrate (Stantec)	Habitat - Vegetation (Stantec)	Fish Species Present (MNRF 2024a, Stantec 2024)	MNRF Fisheries Management Objective	In-water Works Timing Window
ET_24+364	Butler's Creek	44.618386 -75.674432	MNRF: Permanent	MNRF: No data	Direct	Clay, cobble, boulder, gravel, sand	<u>Instream:</u> Crisp Pondweed, Filamentous Algae, Canada Waterweed <u>Riparian:</u> Grasses	MNRF: No data. Stantec 2024: Brook Stickleback, Central Mudminnow, Brown Bullhead, Johnny/Tesselated Darter		
AG_10+050	Unnamed Tributary to St. Lawrence	44.631124 -75.653461	MNRF: Permanent	MNRF: No data	Direct	Silt, muck, clay, gravel	<u>Instream:</u> Watercress, Slender Naiad, <u>Riparian:</u> Grasses	MNRF: No data. Stantec 2024: Brook Stickleback		


Reference: Natural Heritage Information Request – Ministry of Transportation Highway 401 Corridor Mallorytown, Ontario (GWP 4011-22-00 and GWP 4111-22-00)

Closing

We respectfully request confirmation of the above findings and the identification of any additional natural heritage resources information you may have for the two Study Areas. Please contact the undersigned if you have any questions regarding this information request.

Regards,

STANTEC CONSULTING LTD.

 Digitally signed by
MacVeigh, Gina
Date: 2024.06.12
11:44:14 -04'00'

Gina MacVeigh
Senior Fisheries Biologist
Phone: 519-585-7272
gina.macveigh@stantec.com

 Digitally signed
by Orr, Andrea
Date: 2024.06.13
13:14:57 -04'00'

Andrea Orr B.Sc., Tech. Dipl.
Terrestrial Ecologist
Phone: 613-725-5539
Mobile: 343-996-3624
andrea.orr@stantec.com

Attachments Attachment A: Figures

Reference: Natural Heritage Information Request – Ministry of Transportation Highway 401 Corridor Mallorytown, Ontario (GWP 4011-22-00 and GWP 4111-22-00)

Attachment A Figures

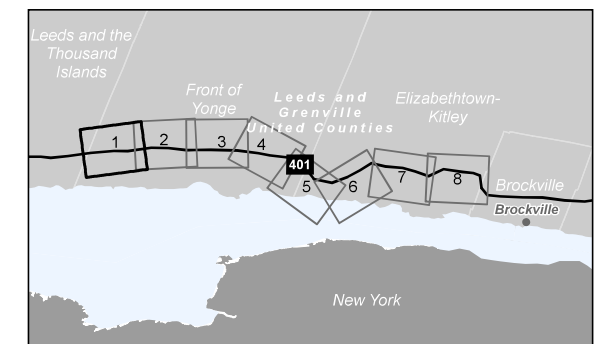
Legend

- Watercourse Crossing
- ▲ Fish Survey Point (ARA)
- Project Location
- MTO ROW
- Watercourse (Permanent)
- Constructed Drain
- Municipal Boundary - Lower Tier



Notes

1. Coordinate System: NAD 1983 UTM Zone 18N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.



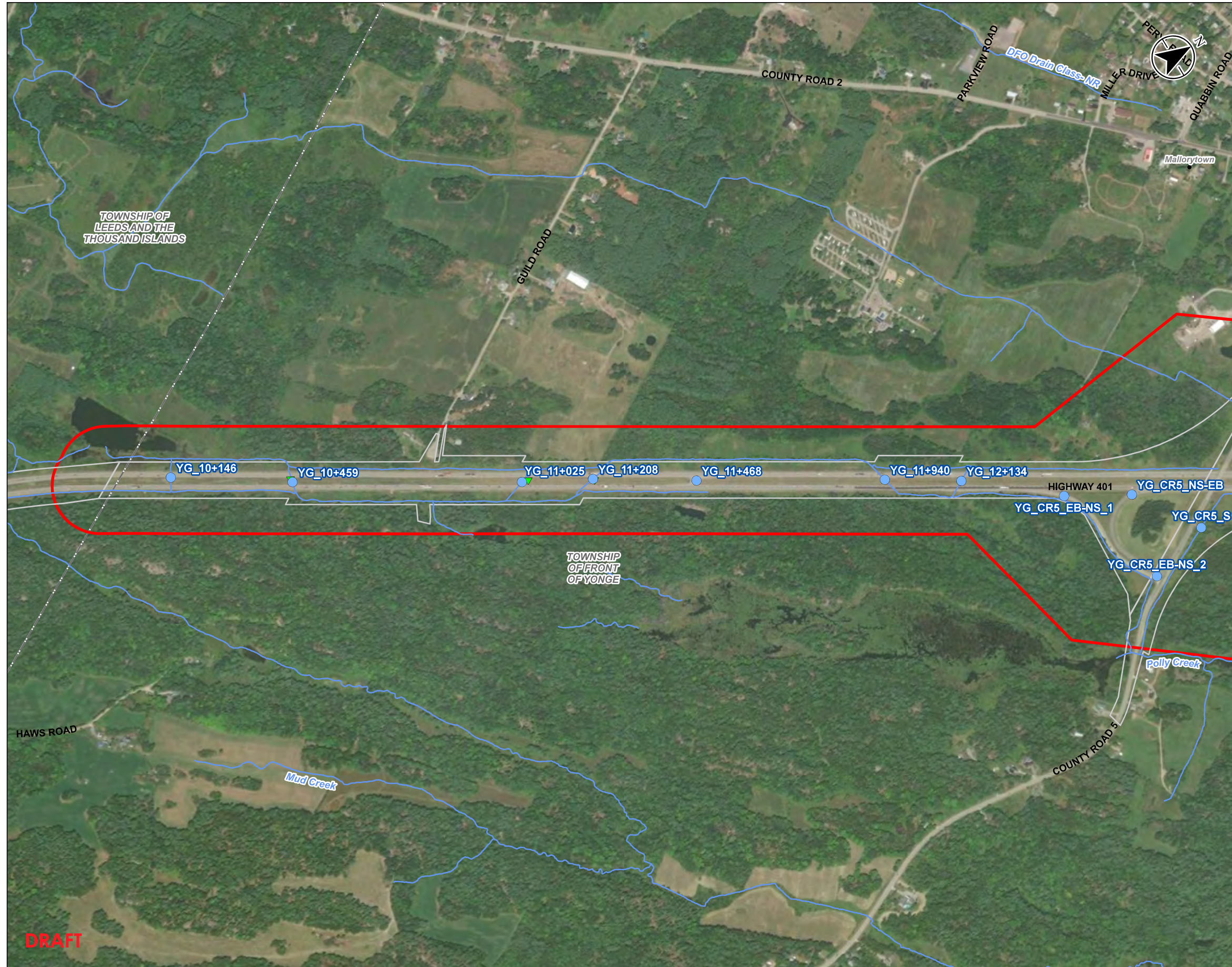
Project Location: 165001328 REVA
 United Counties of Leeds and Grenville
 Prepared by jwernerhill on 2024-06-04
 Technical Review by ABC on yyyy-mm-dd

Client/Project:
 Ministry of Transportation
 Highway 401 Widening and Bridge Rehab/
 Replacement (GWP 4011-22-00)

Figure No.
1-1

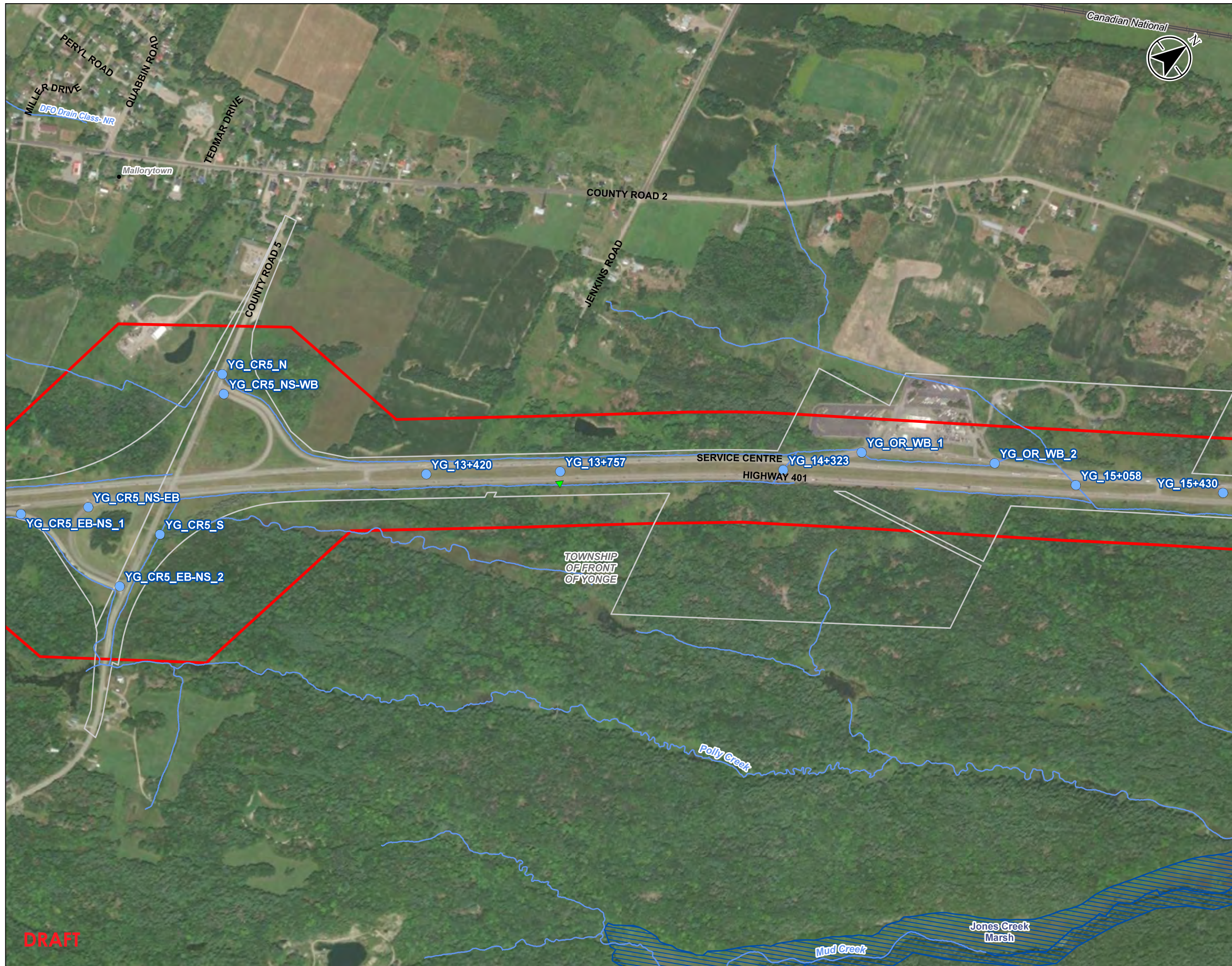
DRAFT

Title
Watercourse Crossing Locations



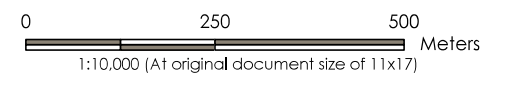
DRAFT

V:\01650\active\165001328\Grenville\Map\A\Aerial\1-22-2024\AOI_Figures.aprx 1328_401_L_FigD1_WaterCrossing_MNRF_Reviewed_2024-07-04 By: jwernerhill



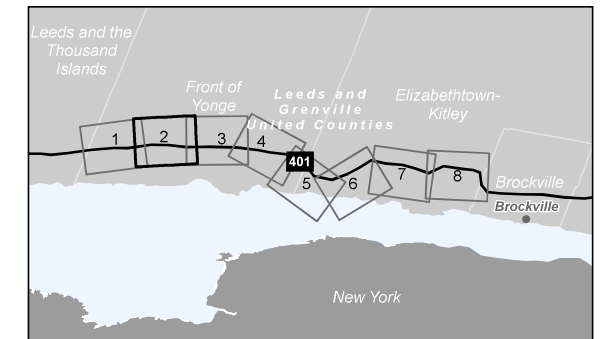
Legend

- Watercourse Crossing
- ▲ Fish Survey Point (ARA)
- Project Location
- MTO ROW
- Base Data**
- Railway
- Watercourse (Permanent)
- Constructed Drain
- Wetland, Provincially Significant
- Municipal Boundary - Lower Tier



Notes

1. Coordinate System: NAD 1983 UTM Zone 18N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.

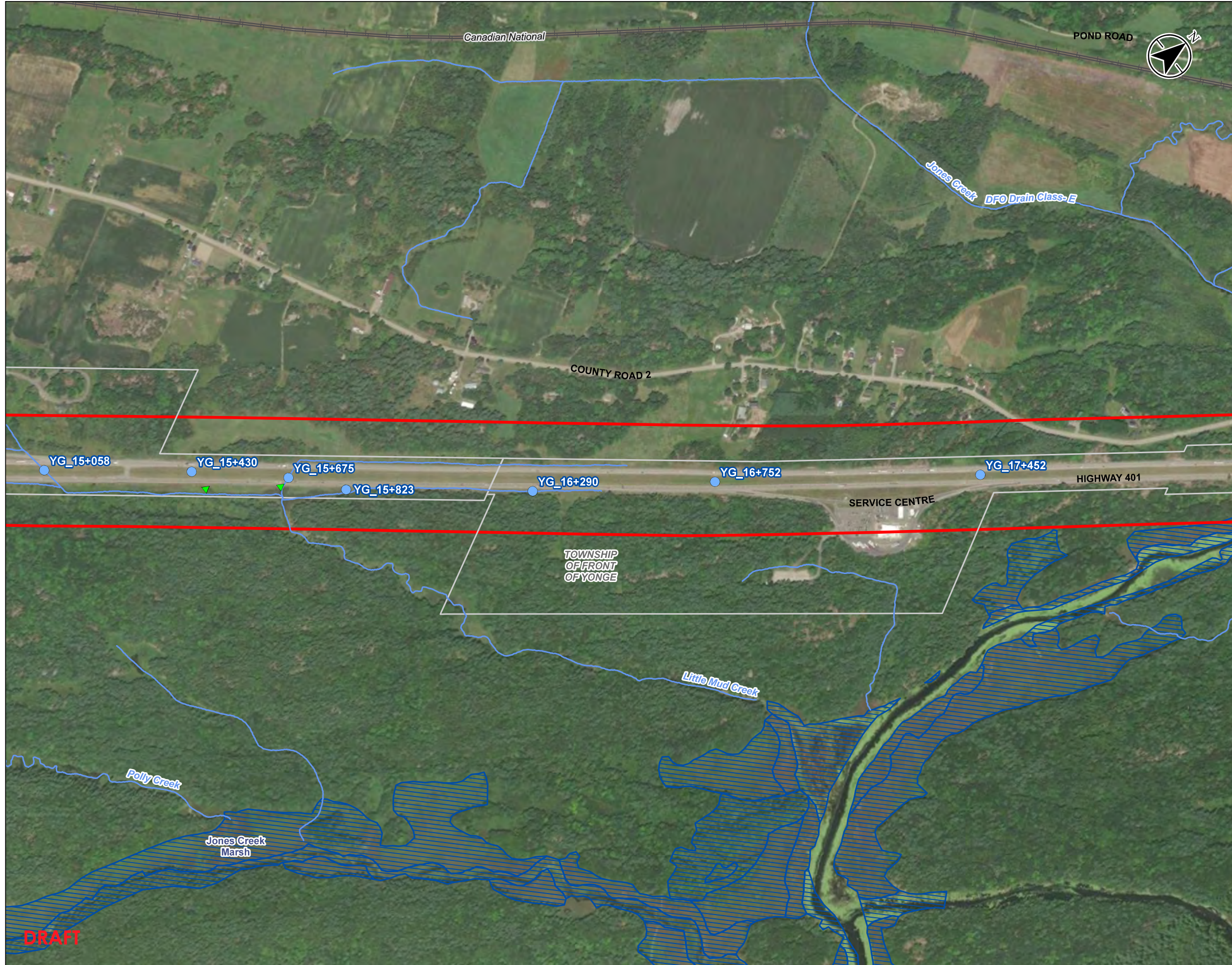


Project Location: United Counties of Leeds and Grenville
 Prepared by: jwernerhill on 2024-06-04
 Technical Review by: ABC on yyyy-mm-dd
 165001328 REVA

Client/Project: Ministry of Transportation
 Highway 401 Widening and Bridge Rehab/ Replacement (GWP 4011-22-00)

Figure No. **1-2** **DRAFT**
 Title: **Watercourse Crossing Locations**

DRAFT

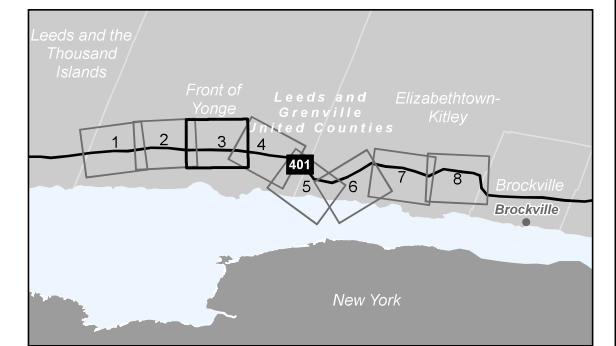


Legend

- Watercourse Crossing
- ▲ Fish Survey Point (ARA)
- Project Location
- MTO ROW
- Base Data
- Railway
- Watercourse (Permanent)
- Constructed Drain
- Wetland, Provincially Significant
- Municipal Boundary - Lower Tier



- Notes
1. Coordinate System: NAD 1983 UTM Zone 18N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.



Project Location: 165001328 REVA
 United Counties of Leeds and Grenville
 Prepared by jwernerhill on 2024-06-04
 Technical Review by ABC on yyyy-mm-dd

Client/Project: Ministry of Transportation
 Highway 401 Widening and Bridge Rehab/
 Replacement (GWP 4011-22-00)

Figure No. **1-3** **DRAFT**

Title: **Watercourse Crossing Locations**

DRAFT

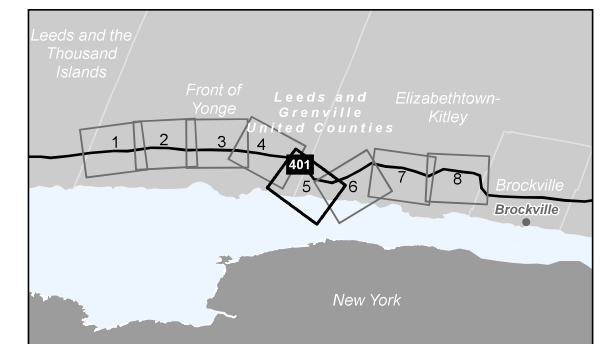
Legend

- Watercourse Crossing
- ▲ Fish Survey Point (ARA)
- Project Location
- MTO ROW
- Watercourse (Permanent)
- Municipal Boundary - Lower Tier
- Thermal Regime, Warm



Notes

1. Coordinate System: NAD 1983 UTM Zone 18N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.



Project Location: 165001328 REVA
 United Counties of Leeds and Grenville
 Prepared by jwernerhill on 2024-06-04
 Technical Review by ABC on yyyy-mm-dd

Client/Project: Ministry of Transportation
 Highway 401 Widening and Bridge Rehab/
 Replacement (GWP 4011-22-00)

Figure No.
1-5

DRAFT

Title
Watercourse Crossing Locations



DRAFT

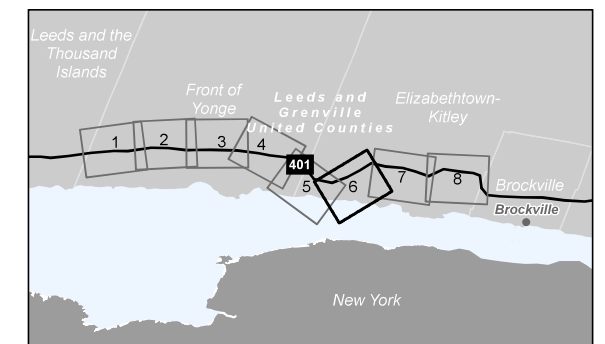
Legend

- Watercourse Crossing
- ▲ Fish Survey Point (ARA)
- Project Location
- MTO ROW
- Watercourse (Permanent)
- Municipal Boundary - Lower Tier
- Thermal Regime, Warm



Notes

1. Coordinate System: NAD 1983 UTM Zone 18N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.

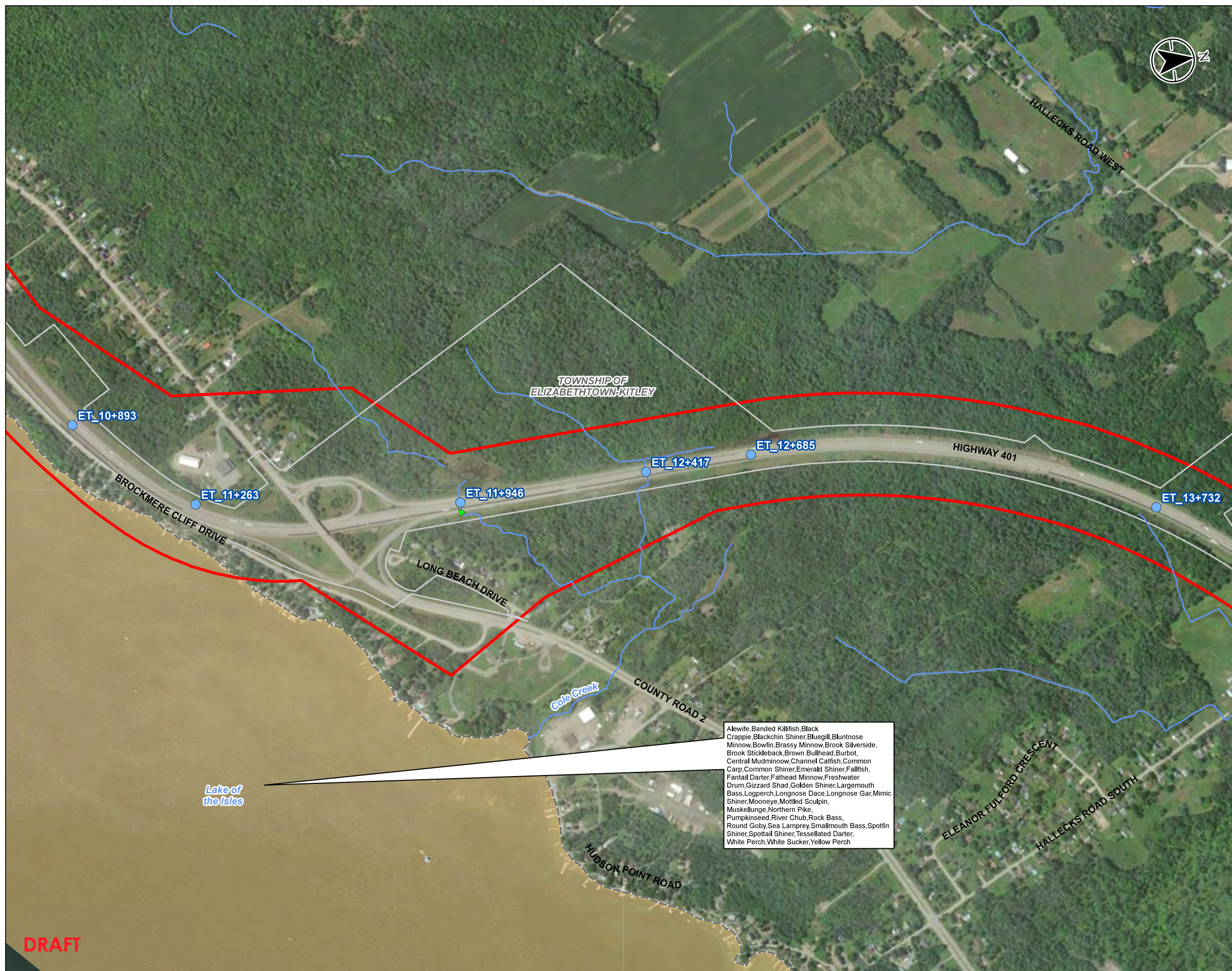


Project Location: 165001328 REVA
 United Counties of Leeds and Grenville
 Prepared by jwernerhill on 2024-06-04
 Technical Review by ABC on yyyy-mm-dd

Client/Project: Ministry of Transportation
 Highway 401 Widening and Bridge Rehab/
 Replacement (GWP 4011-22-00)

Figure No. **1-6** **DRAFT**

Title: **Watercourse Crossing Locations**



- Alewife, Banded Killifish, Black Crappie, Blackchin Shiner, Bluegill, Bluntnose Minnow, Bowfin, Brassy Minnow, Brook Silverside, Brook Stickleback, Brown Bullhead, Burbot, Central Mudminnow, Channel Catfish, Common Carp, Common Shiner, Emerald Shiner, Fallfish, Fantail Darter, Fathead Minnow, Freshwater Drum, Gizzard Shad, Golden Shiner, Largemouth Bass, Logperch, Longnose Dace, Longnose Gar, Mimic Shiner, Mooneye, Mottled Sculpin, Muskellunge, Northern Pike, Pumpkinseed, River Chub, Rock Bass, Round Goby, Sea Lamprey, Smallmouth Bass, Spottail Shiner, Spottail Shiner, Tessellated Darter, White Perch, White Sucker, Yellow Perch

DRAFT

V:\016501328\Gis\Final\Map\Map_Aerial\Map_Aerial_Figures.aprx\1328_001_L_Fig01_L_WaterCrossing_MNRF_Review.dwg, 2024-06-04, By: jwernerhill

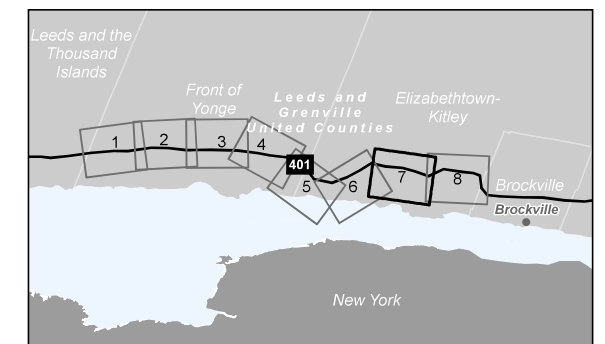
Legend

- Watercourse Crossing
 - ▲ Fish Survey Point (ARA)
 - Project Location
 - MTO ROW
- Base Data
- Railway
 - Watercourse (Permanent)
 - Municipal Boundary - Lower Tier



Notes

1. Coordinate System: NAD 1983 UTM Zone 18N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.



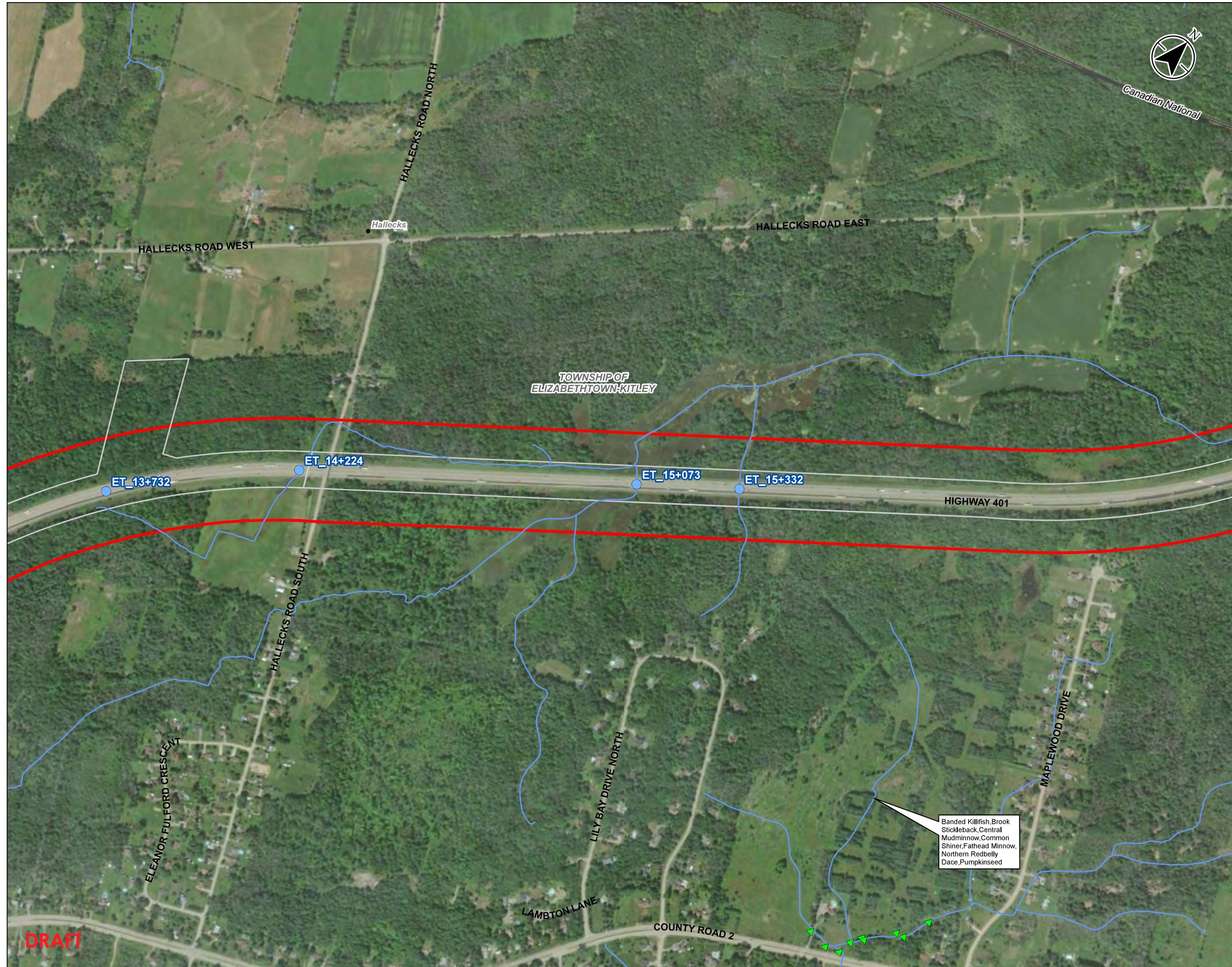
Project Location: 165001328 REVA
 United Counties of Leeds and Grenville
 Prepared by jwernerhill on 2024-06-04
 Technical Review by ABC on yyyy-mm-dd

Client/Project: Ministry of Transportation
 Highway 401 Widening and Bridge Rehab/
 Replacement (GWP 4011-22-00)

Figure No. **1-7**

DRAFT

Title: **Watercourse Crossing Locations**



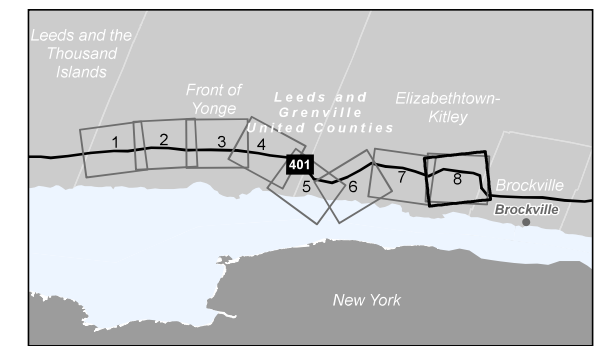
DRAFT

Legend

- Watercourse Crossing
- Project Location
- MTO ROW
- Base Data
- Railway
- Watercourse (Permanent)
- Wetland, Other Evaluated
- Municipal Boundary - Lower Tier



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 18N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.

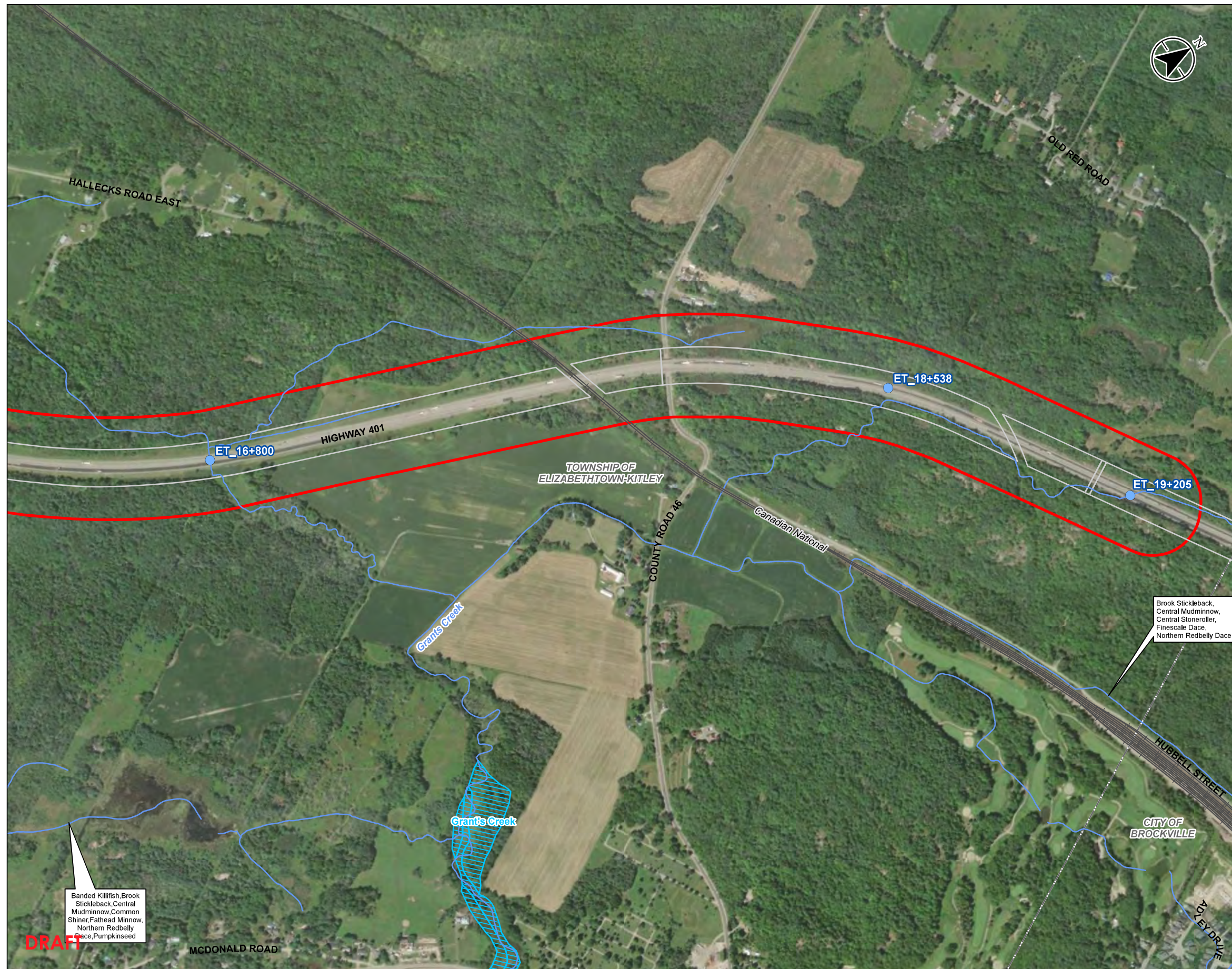


Project Location: United Counties of Leeds and Grenville
 Prepared by: jwernerhill on 2024-06-04
 Technical Review by: ABC on yyyy-mm-dd

Client/Project: Ministry of Transportation
 Highway 401 Widening and Bridge Rehab/Replacement (GWP 4011-22-00)

Figure No. **1-8** DRAFT

Title: **Watercourse Crossing Locations**



Banded Killifish, Brook Slickleback, Central Mudminnow, Common Shiner, Fathead Minnow, Northern Redbelly Dace, Pumpkinseed

Brook Slickleback, Central Mudminnow, Central Stoneroller, Finescale Dace, Northern Redbelly Dace

DRAFT

V:\01650\active\165001328\preliminary\Map\Map1_Aerial\1-22-2024\AOI_Figures.aprx 1328_AOI_L_FigD1_WaterCrossing_MNRF_Review.dwg 2024-06-04 By: jwernerhill

Legend

- Watercourse Crossing
- ▲ Fish Survey Point (ARA)
- Project Location
- MTO ROW
- Base Data
- Railway
- Watercourse (Permanent)
- Municipal Boundary - Lower Tier



Notes

1. Coordinate System: NAD 1983 UTM Zone 18N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.
3. Orthoimagery obtained from First Base Solutions, Leeds, 2008.



Project Location: United Counties of Leeds and Grenville
 Prepared by: jwernerhill on 2024-06-04
 Technical Review by: ABC on yyyy-mm-dd

Client/Project: Ministry of Transportation
 Highway 401 Widening and Bridge Rehab/
 Replacement (GWP 4111-022-00)

Figure No.

1b

DRAFT

Title

Watercourse Crossing Locations



DRAFT

Legend

- MTO Structure
- Study Area
- Fish Survey Point (ARA)
- Highway
- Major Road
- Minor Road
- Contour (5 m Interval)
- Contour (10 m Interval)
- Contour (100 m Interval)
- Watercourse (Permanent)
- Constructed Drain
- Conservation Authority Administrative Boundary
- Candidate ANSI, Life Science
- Significant Ecological Area
- Wetland, Unevaluated
- Waterbody
- Federal Protected Area
- Wooded Area
- Municipal Boundary, Upper
- Municipal Boundary, Lower



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 18N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.



Project Location REVA
 Prepared by jwernerhill on 2024-03-14
 Technical Review by ABC on yyyy-mm-dd

Client/Project



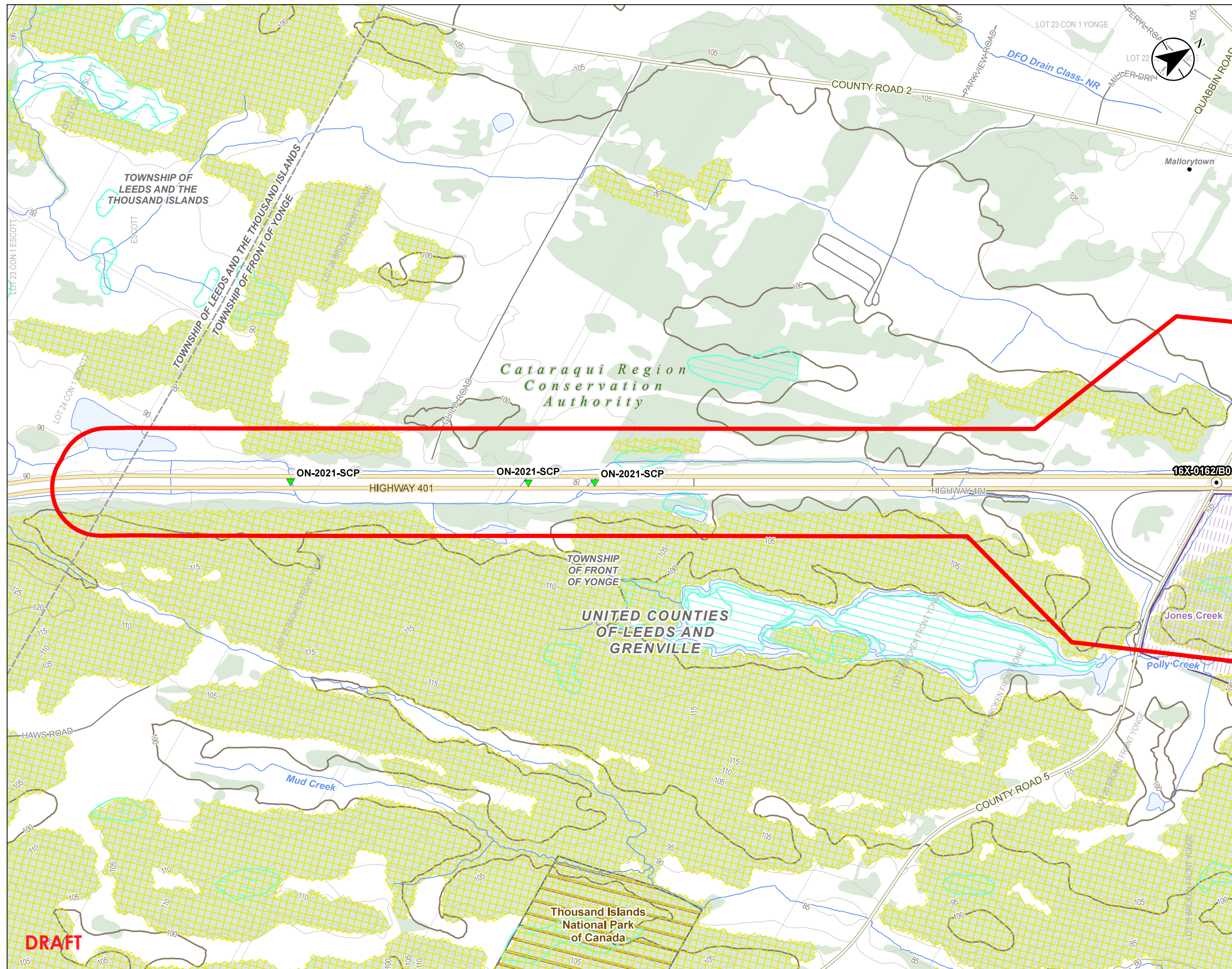
Figure No.

2-1

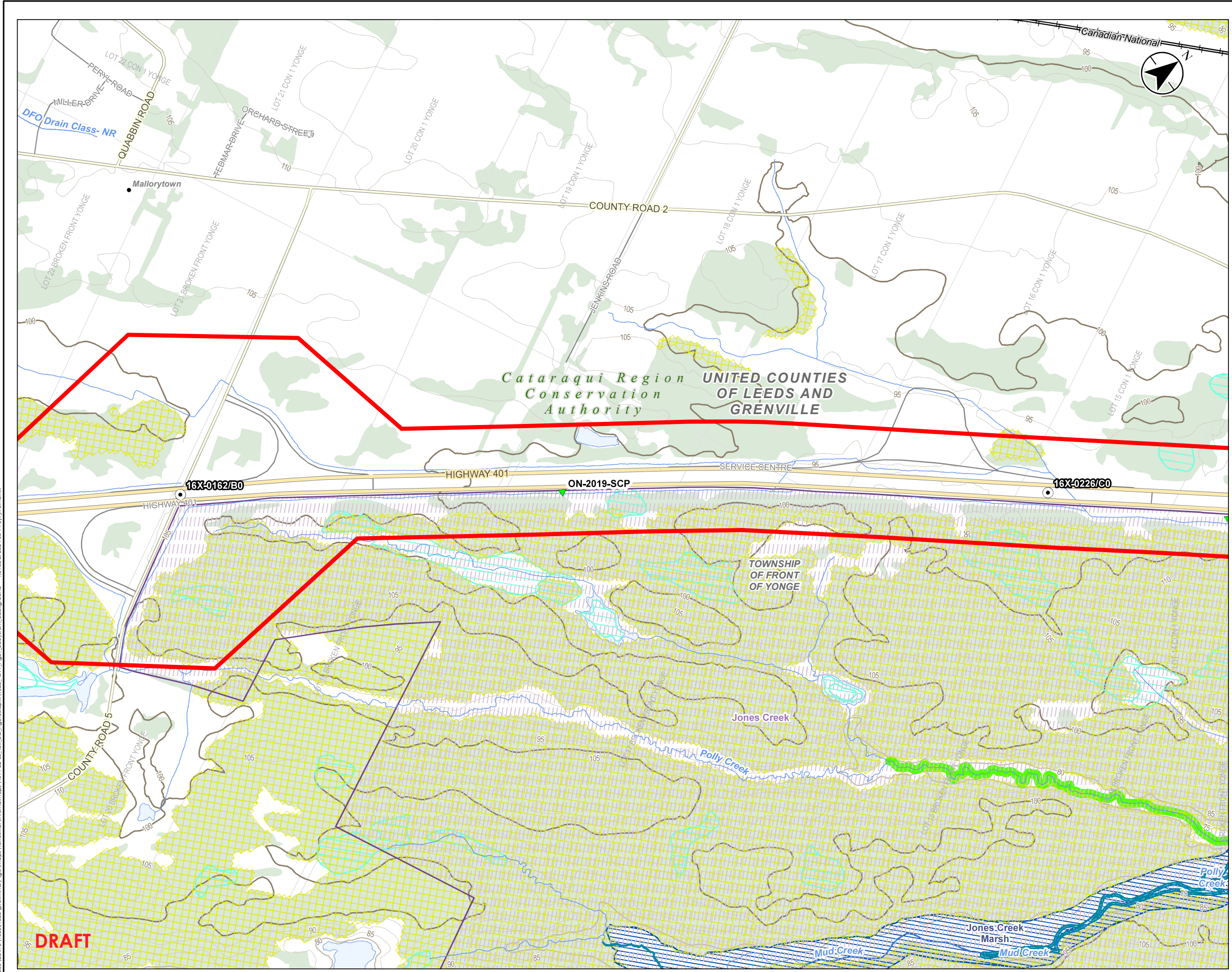
DRAFT

Title

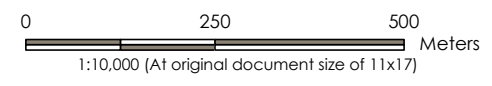
Study Area



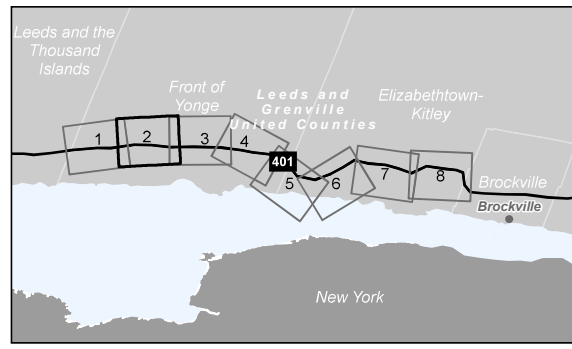
DRAFT



- Legend**
- MTO Structure
 - Study Area
 - Conservation Authority
 - Administrative Boundary
 - Candidate ANSI, Life Science
 - Significant Ecological Area
 - Aquatic Species at Risk Distribution
 - Highway
 - Major Road
 - Minor Road
 - Railway
 - Contour (5 m Interval)
 - Contour (10 m Interval)
 - Contour (100 m Interval)
 - Fish Spawning Area
 - Watercourse (Permanent)
 - Constructed Drain
 - Wetland, Provincially Significant
 - Wetland, Unevaluated
 - Waterbody
 - Wooded Area
 - Municipal Boundary, Upper
 - Municipal Boundary, Lower



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 18N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.



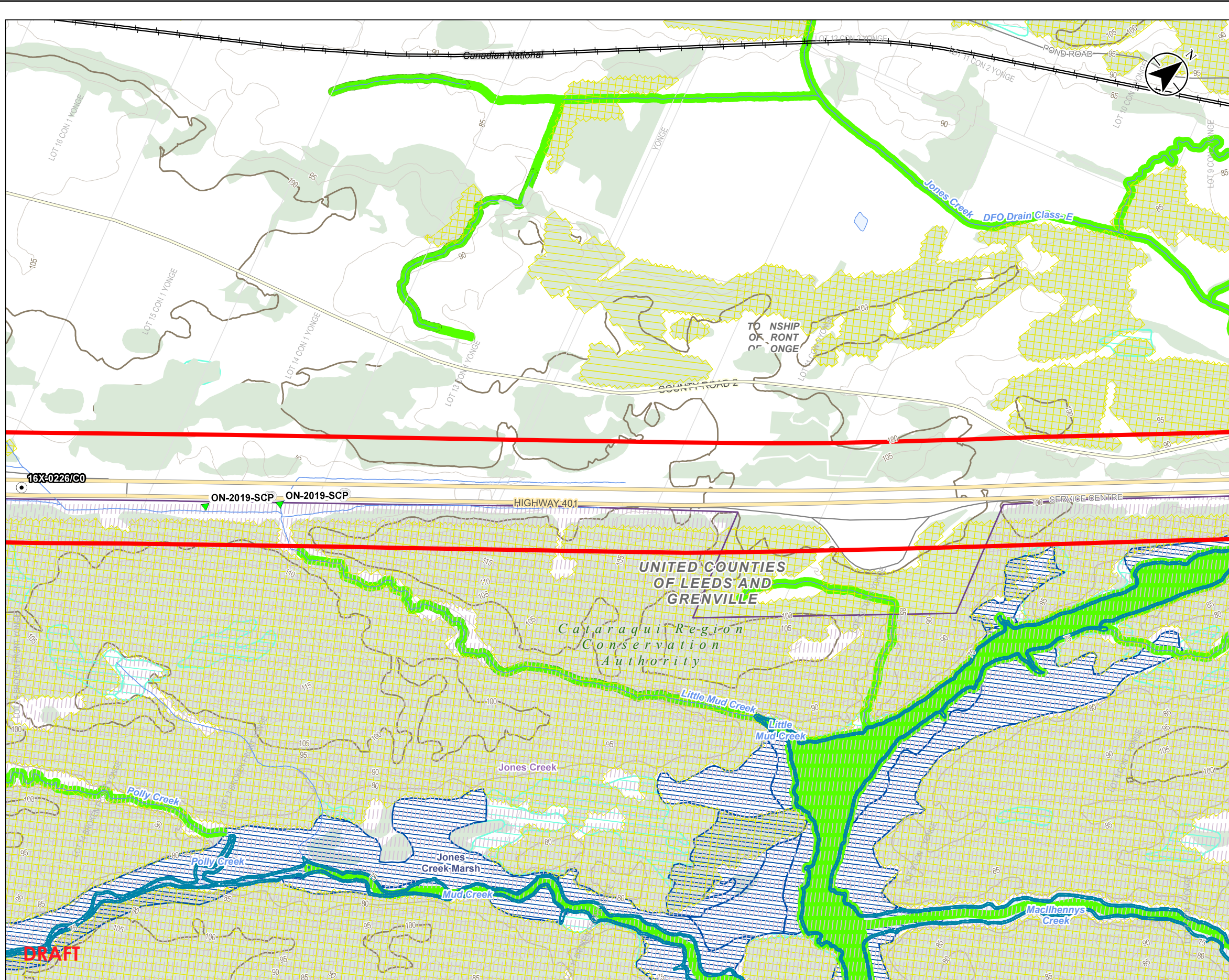
Project Location REVA
 Prepared by jwernerhill on 2024-03-14
 Technical Review by ABC on yyyy-mm-dd

Client/Project □

Figure No. **2-2** **DRAFT**
 Title **Study Area**

V:\01650\active\165001328\preliminary\gha\Mapa\Terrestrial\Internal\Mapa\011-22-00_ER_EC_Figures.aprx\1328_4011_Fig01_Ecosystem_Background

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.



Legend

- MTO Structure
- Study Area
- Fish Survey Point (ARA)
- Highway
- Major Road
- Minor Road
- Railway
- Contour (5 m Interval)
- Contour (10 m Interval)
- Contour (100 m Interval)
- Fish Spawning Area
- Watercourse (Permanent)
- Constructed Drain
- Conservation Authority Administrative Boundary
- Candidate ANSI, Life Science
- Significant Ecological Area
- Aquatic Species at Risk Distribution
- Wetland, Provincially Significant
- Wetland, Unevaluated
- Waterbody
- Wooded Area
- Municipal Boundary, Upper
- Municipal Boundary, Lower



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 18N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.



Project Location REVA
 Prepared by jwernerhill on 2024-03-14
 Technical Review by ABC on yyyy-mm-dd

Client/Project



Figure No.

2-3

DRAFT

Title

Study Area

DRAFT

Legend

- MTO Structure
- Study Area
- Fish Survey Point (ARA)
- Highway
- Major Road
- Minor Road
- Railway
- Contour (5 m Interval)
- Contour (10 m Interval)
- Contour (100 m Interval)
- Fish Spawning Area
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Constructed Drain
- Conservation Authority Administrative Boundary
- Candidate ANSI, Life Science
- Significant Ecological Area
- Thermal Regime, Cool
- Thermal Regime, Warm
- Aquatic Species at Risk Distribution
- Wetland, Provincially Significant
- Wetland, Unevaluated
- Waterbody
- Wooded Area
- Municipal Boundary, Upper
- Municipal Boundary, Lower



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 18N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.



Project Location REVA
 Prepared by jwernerhill on 2024-03-14
 Technical Review by ABC on yyyy-mm-dd

Client/Project

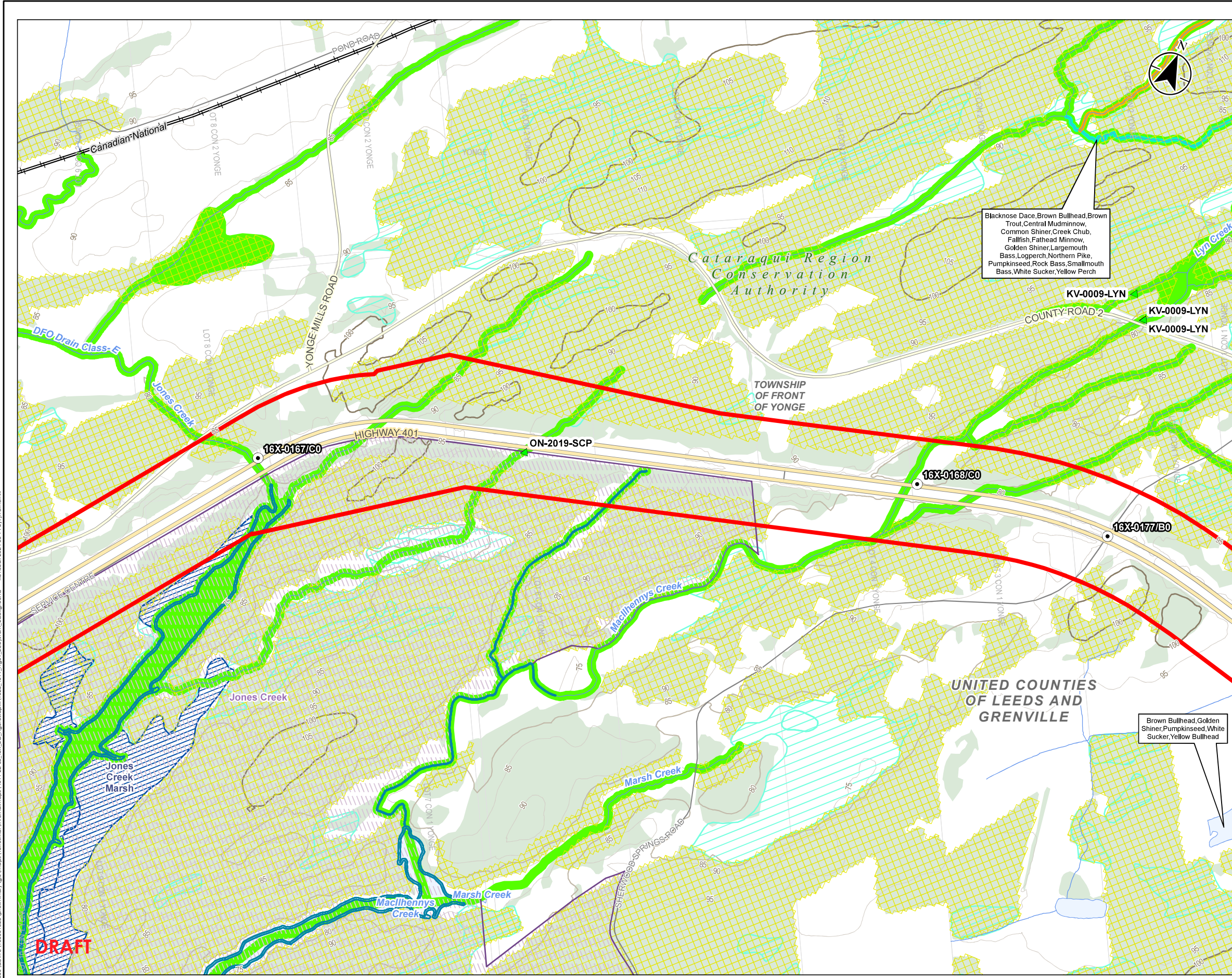
Figure No.

2-4

DRAFT

Title

Study Area



DRAFT

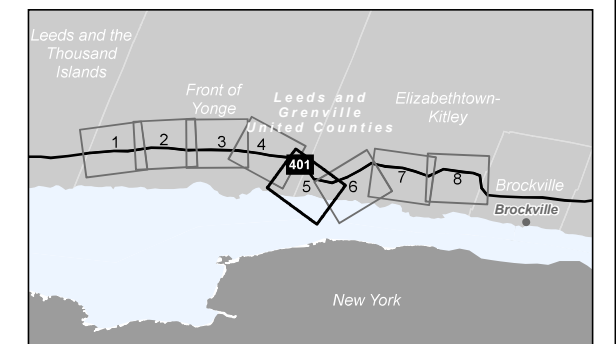
V:\01650\csc\live\165001328\preliminary\gha\Mapa\Terrestrial\Internal\Mapa\4011-22-00_TER_EC_Figures.aprx\1328_4011_Fig01_Ecoyfem_Background

Legend

- MTO Structure
- Study Area
- Fish Survey Point (ARA)
- Highway
- Major Road
- Minor Road
- Contour (5 m Interval)
- Contour (10 m Interval)
- Contour (100 m Interval)
- Watercourse (Permanent)
- Conservation Authority Administrative Boundary
- Significant Ecological Area
- Thermal Regime, Warm
- Aquatic Species at Risk Distribution
- Wetland, Unevaluated
- Waterbody
- Wooded Area
- Municipal Boundary, Upper
- Municipal Boundary, Lower



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 18N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.



Project Location REVA
 Prepared by jwernerhill on 2024-03-14
 Technical Review by ABC on yyyy-mm-dd

Client/Project



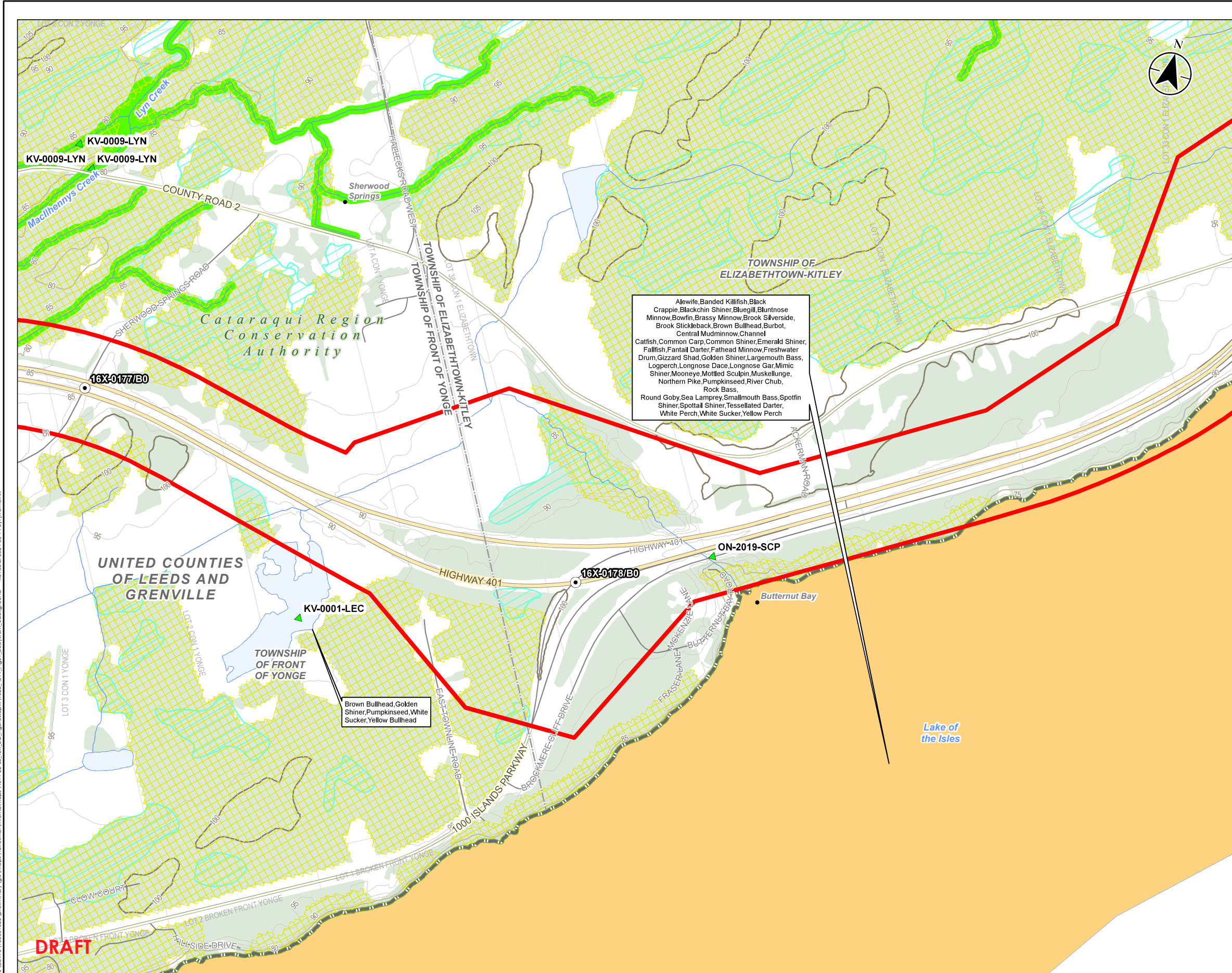
Figure No.

2-5

DRAFT

Title

Study Area

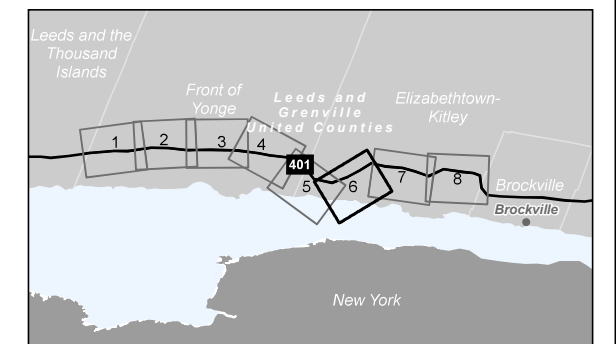


Legend

- MTO Structure
- Study Area
- Fish Survey Point (ARA)
- Highway
- Major Road
- Minor Road
- Contour (5 m Interval)
- Contour (10 m Interval)
- Contour (100 m Interval)
- Watercourse (Permanent)
- Conservation Authority Administrative Boundary
- Significant Ecological Area
- Thermal Regime, Warm
- Aquatic Species at Risk Distribution
- Wetland, Unevaluated
- Waterbody
- Wooded Area
- Municipal Boundary, Upper
- Municipal Boundary, Lower



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 18N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.

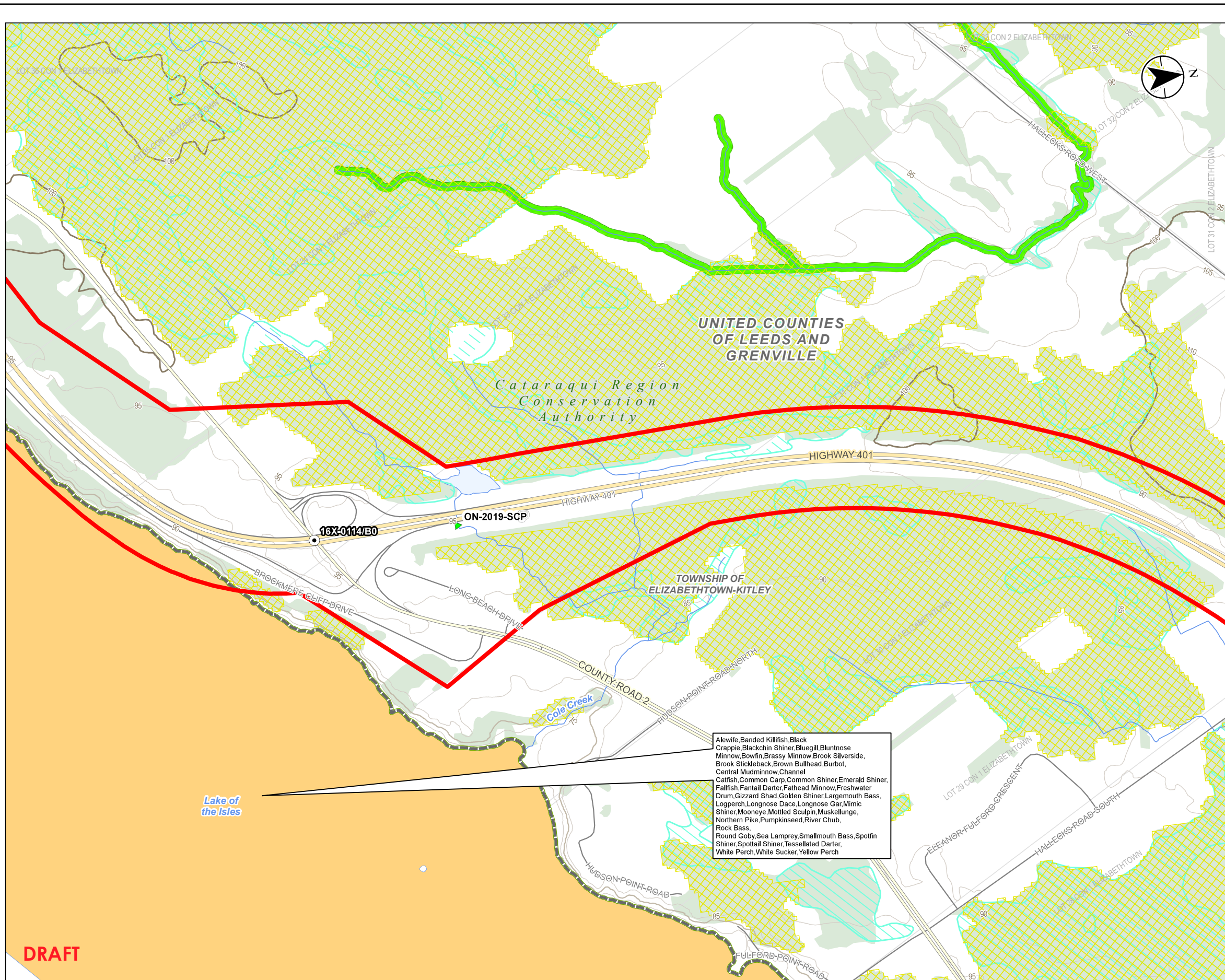


Project Location REVA
 Prepared by jwernerhill on 2024-03-14
 Technical Review by ABC on yyyy-mm-dd

Client/Project REVA

Figure No. **DRAFT**
2-6

Title **Study Area**



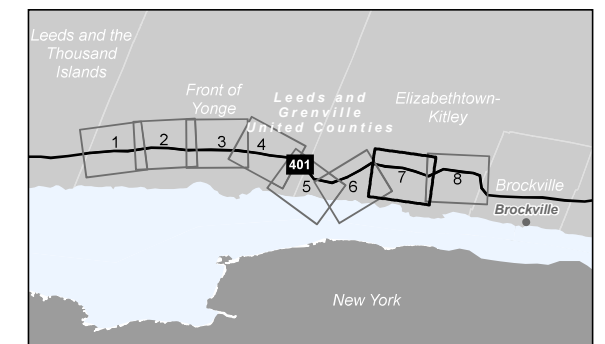
DRAFT

Legend

- █ Study Area
- ▲ Fish Survey Point (ARA)
- Highway
- Major Road
- Minor Road
- Railway
- Contour (5 m Interval)
- Contour (10 m Interval)
- Contour (100 m Interval)
- Watercourse (Permanent)
- Conservation Authority Administrative Boundary
- Significant Ecological Area
- Wetland, Unevaluated
- Wooded Area
- Municipal Boundary, Upper
- Municipal Boundary, Lower



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 18N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.



Project Location REVA
 Prepared by jwernerhill on 2024-03-14
 Technical Review by ABC on yyyy-mm-dd

Client/Project



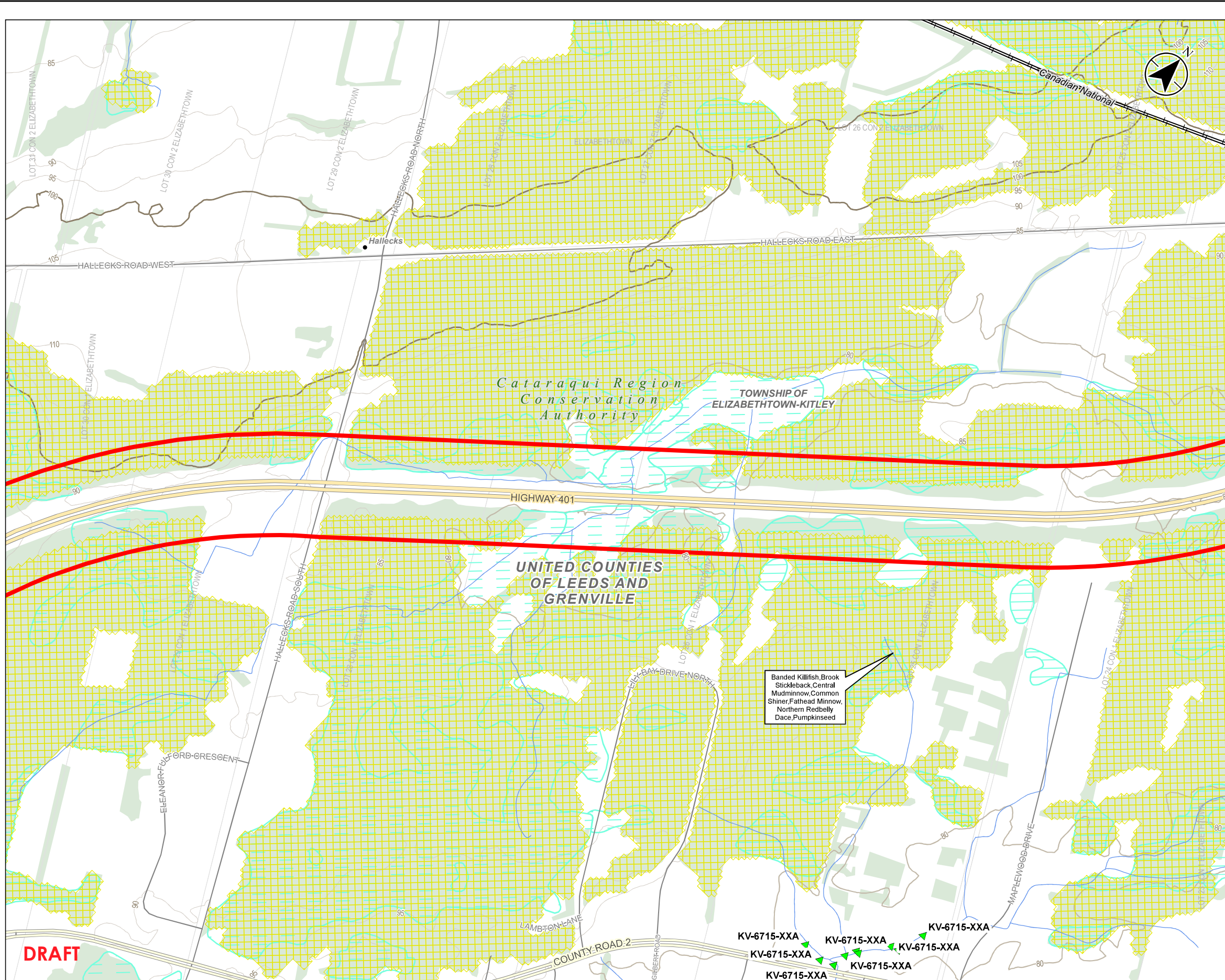
Figure No.

2-7

Title

Study Area

DRAFT



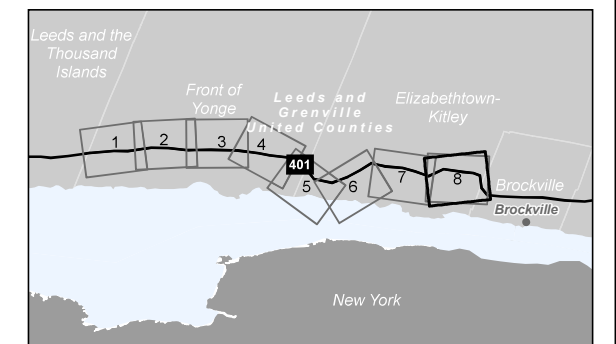
DRAFT

Legend

- MTO Structure
- Study Area
- Highway
- Major Road
- Minor Road
- Railway
- Unknown Transmission Line
- Contour (5 m Interval)
- Contour (10 m Interval)
- Contour (100 m Interval)
- Fish Spawning Area
- Watercourse (Permanent)
- Conservation Authority
- Administrative Boundary
- Significant Ecological Area
- Wetland, Other Evaluated
- Wetland, Unevaluated
- Waterbody
- Wooded Area
- Municipal Boundary, Upper
- Municipal Boundary, Lower



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 18N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.



Project Location REVA
 Prepared by jwernerhill on 2024-03-14
 Technical Review by ABC on yyyy-mm-dd

Client/Project



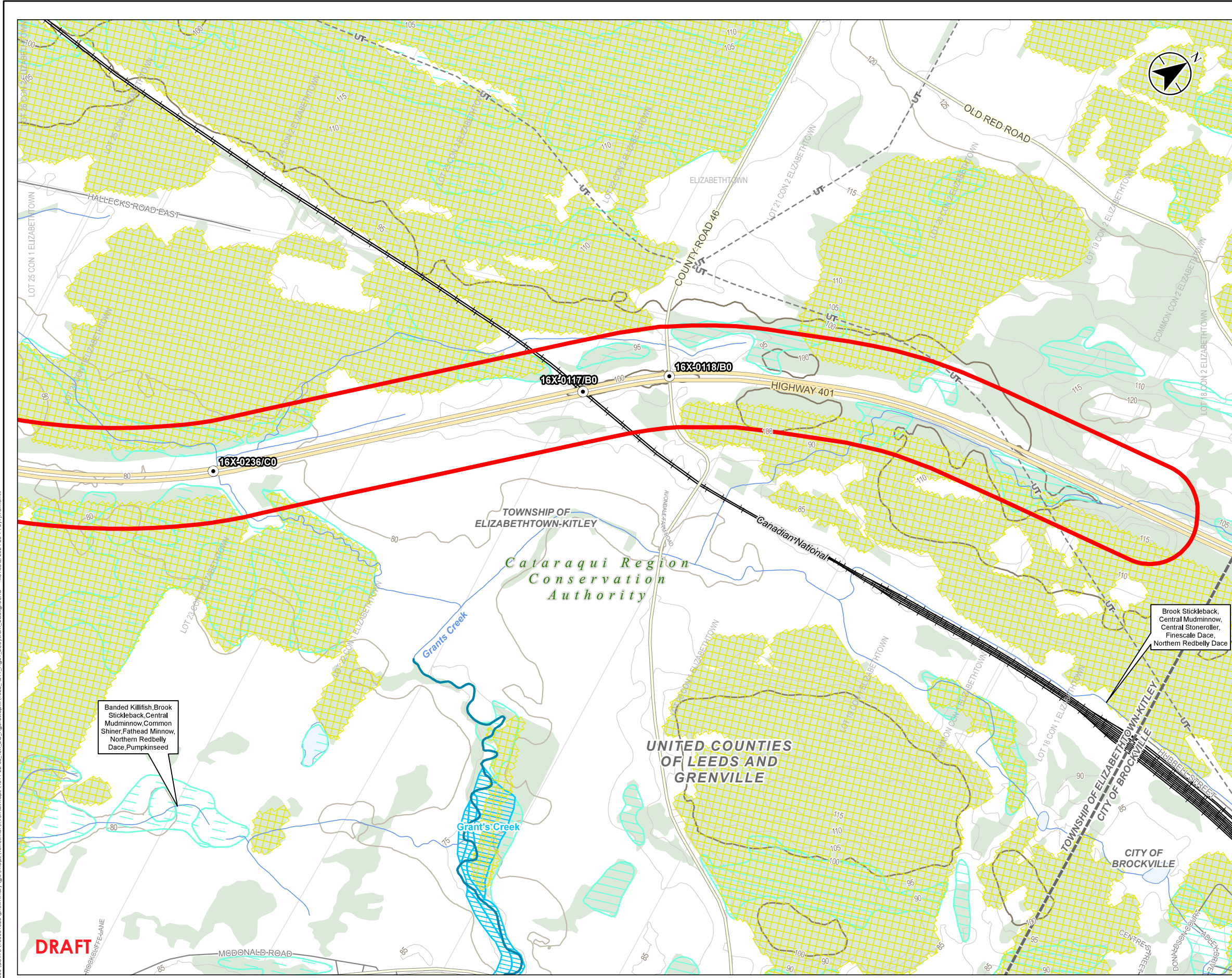
Figure No.

2-8

DRAFT

Title

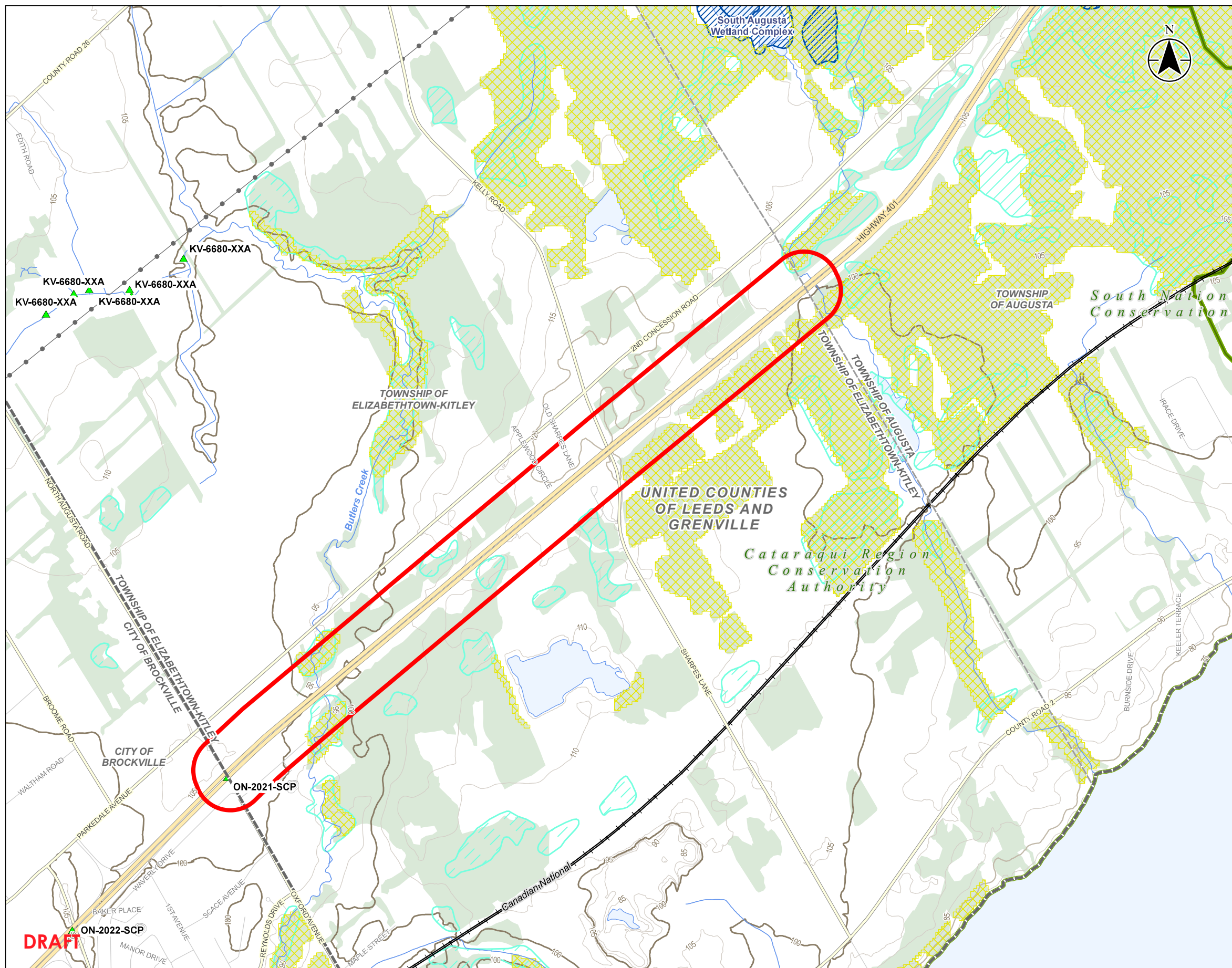
Study Area



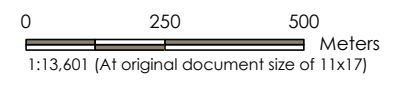
DRAFT

V:\01650\active\165001328\preliminary\gha\Mapa\Terrestrial\Internal\Mapa\011-22-00_ER_EC_Figures.aprx\1328_4011_Fig01_Ecosystem_Background

V:\016501328\gms\m\165001328\gms\m\165001328\EC_Figures\1328_4111_Fig01_Ecosystem_Background_Rev20240314.Bjw\wernerhill



- Legend**
- | | |
|----------------------------|--|
| Study Area | Watercourse (Permanent) |
| Fish Survey Point (ARA) | Conservation Authority Administrative Boundary |
| Fish Survey Point (ARA) | Significant Ecological Area |
| Expressway / Highway | Wetland, Provincially Significant |
| Major Road | Wetland, Unevaluated |
| Minor Road | Waterbody |
| Railway | Municipal Boundary, Upper |
| Hydro Line | Municipal Boundary, Lower |
| Contour (100 m Interval) | Wooded Area |
| Contour (10 m Interval) | |
| Contour (5 m Interval) | |
| Watercourse (Intermittent) | |



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 18N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.



Project Location: United Counties of Leeds and Grenville
 Prepared by: jwernerhill on 2024-03-14
 Technical Review by: ABC on yyyy-mm-dd

Client/Project: Ministry of Transportation
 Highway 401 Widening and Bridge Rehab/
 Replacement (GWP 4111-022-00)

Figure No. **2b**
 Title **Project Location**

DRAFT

DRAFT

From: [Cote, Joff \(MNRF\)](#)
To: [MacVeigh, Gina](#); [Orr, Andrea](#)
Cc: [Cote, Joff \(MNRF\)](#); [Kemptville-Kingston MNRF](#)
Subject: FW: Natural Heritage Information Request – Ministry of Transportation Highway 401 Corridor
Date: Tuesday, June 18, 2024 11:45:16 AM
Attachments: [image001.png](#)
[Table 1 and 2 for MNRF info request Mallorytown MTO2024.docx](#)
[Table 1 and 2 for MNRF info request Mallorytown MTO2024.pdf](#)

Hi Gina/Andrea,

As requested, please see attached Tables.

Please let me know if you have any follow up questions.

Joffre Côté

Management Biologist | Regional Operations Division
Ontario Ministry of Natural Resources and Forestry | Ontario Public Service
613-302-3494
joff.cote@ontario.ca



Taking pride in strengthening Ontario, its places and its people

For General Inquiries: kemptville-kingston.MNRF@ontario.ca

Joffre Côté

Biologiste, gestion des ressources | Division des opérations régionales
Ministère des Richesses naturelles et des Forêts de l'Ontario | Fonction publique de l'Ontario
613-302-3494
joff.cote@ontario.ca



Fier de renforcer l'Ontario, ses lieux et sa population

Pour les demandes générales: kemptville-kingston.MNRF@ontario.ca

From: MacVeigh, Gina <Gina.MacVeigh@stantec.com>
Sent: Thursday, June 13, 2024 2:02 PM

To: Kemptville-Kingston MNRF <kemptville-kingston.mnrf@ontario.ca>

Cc: Orr, Andrea <Andrea.Orr@stantec.com>; Gazibara, Nevena <Nevena.Gazibara@stantec.com>;
Werner-Hill, Julie <Julie.Werner-Hill@stantec.com>

Subject: Natural Heritage Information Request – Ministry of Transportation Highway 401 Corridor

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hello,

The Ontario Ministry of Transportation (MTO) has retained Stantec Consulting Ltd. to complete the Preliminary Design (PD) and Environmental Assessment (EA) work for the rehabilitation and/or replacement of bridges, interchange improvements and widening of Highway 401 from four to eight lanes. There are two Study Areas associated with this Assignment:

- GWP 4011-22-00 – 2.8 kilometers (km) west of Mallorytown Road to 2.1 km west of Stewart Boulevard for a total length of approximately 21.6 km.
- GWP 4111-22-00 – 0.75 km east of North Augusta Road to 3.3 km west of Maitland Road for a total length of approximately 2.6 km.

Attached is a letter to request your input with respect to existing conditions within the Study Area, and to identify issues, concerns, or approval requirements that the Ministry of Natural Resources and Forestry (MNRF) may have.

Please let me know if you have any questions or require further information.
Thank you,

Gina MacVeigh
Senior Fisheries Biologist

Direct: 519-585-7272

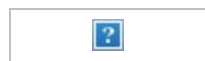
Mobile: 519-901-0438

Gina.MacVeigh@stantec.com

Stantec

100-300 Hagey Boulevard

Waterloo ON N2L 0A4



The content of this email is the confidential property of Stantec and should not be copied, modified, retransmitted, or used for any purpose except with Stantec's written authorization. If you are not the intended recipient, please delete all copies and notify us immediately.

Please consider the environment before printing this email.

Caution: This email originated from outside of Stantec. Please take extra precaution.

Attention: Ce courriel provient de l'extérieur de Stantec. Veuillez prendre des précautions supplémentaires.

Atención: Este correo electrónico proviene de fuera de Stantec. Por favor, tome precauciones adicionales.

Appendix C Vascular Plant List



VASCULAR PLANT LIST - Agreement 4023-E-0009 (GWP 4111-22-00) Preliminary Design, Highway 401 Widening and Structures Rehabilitation / Replacement

Plant species observed in June 2024

SCIENTIFIC NAME	COMMON NAME	PROVINCIAL STATUS (S-RANK)	SARO STATUS	COSEWIC STATUS	COEFFICIENT OF CONSERVATISM	COEFFICIENT OF WETNESS
PTERIDOPHYTES (FERNS & FERN ALLIES)						
<i>Athyrium filix-femina</i>	Common Lady Fern	S5			4	0
<i>Equisetum arvense</i>	Field Horsetail	S5			0	0
<i>Matteuccia struthiopteris</i>	Ostrich Fern	S5			5	0
<i>Onoclea sensibilis</i>	Sensitive Fern	S5			4	-3
<i>Osmunda regalis</i> var. <i>spectabilis</i>	Royal Fern	S5			7	-5
<i>Thelypteris palustris</i>	Marsh Fern	S5			5	-3
GYMNOSPERMS (CONIFERS)						
<i>Juniperus virginiana</i>	Eastern Red Cedar	S5			4	3
<i>Larix decidua</i>	European Larch	SE2				5
<i>Pinus sylvestris</i>	Scots Pine	SE5				3
ANGIOSPERMS (DICOTS)						
<i>Acer negundo</i>	Manitoba Maple	S5			0	0
<i>Acer platanoides</i>	Norway Maple	SE5				5
<i>Aegopodium podagraria</i>	Goutweed	SE5				0
<i>Alnus incana</i> ssp. <i>rugosa</i>	Speckled Alder	S5			6	-3
<i>Arctium</i> cf. <i>minus</i>	Common Burdock	SE5				3
<i>Asclepias syriaca</i>	Common Milkweed	S5			0	5
<i>Betula populifolia</i>	Grey Birch	S4			5	0
<i>Boehmeria cylindrica</i>	Small-spike False Nettle	S5			4	-5
<i>Caltha palustris</i>	Yellow Marsh Marigold	S5			5	-5
<i>Cerastium</i> cf. <i>fontanum</i>	Common Mouse-ear Chickweed	SE5				3
<i>Chaenorhinum minus</i>	Dwarf Snapdragon	SE5				5
<i>Circaea canadensis</i>	Enchanter's Nightshade	S5			2	3
<i>Clematis virginiana</i>	Virginia Clematis	S5			3	0
<i>Cornus racemosa</i>	Grey Dogwood	S5			2	0
<i>Daucus carota</i>	Wild Carrot	SE5				5
<i>Elaeagnus umbellata</i>	Autumn Olive	SE3				3
<i>Erigeron philadelphicus</i>	Philadelphia Fleabane	S5			1	-3
<i>Eutrochium maculatum</i>	Spotted Joe Pye Weed	S5			3	-5
<i>Frangula alnus</i>	Glossy Buckthorn	SE5				0
<i>Fraxinus pennsylvanica</i>	Red Ash	S4			3	-3
<i>Galium mollugo</i>	Smooth Bedstraw	SE5				5

VASCULAR PLANT LIST - Agreement 4023-E-0009 (GWP 4111-22-00) Preliminary Design, Highway 401 Widening and Structures Rehabilitation / Replacement

Plant species observed in June 2024

SCIENTIFIC NAME	COMMON NAME	PROVINCIAL STATUS (S-RANK)	SARO STATUS	COSEWIC STATUS	COEFFICIENT OF CONSERVATISM	COEFFICIENT OF WETNESS
<i>Galium cf. palustre</i>	Common Marsh Bedstraw	S5			5	-5
<i>Geum canadense</i>	Canada Avens	S5			3	0
<i>Glechoma hederacea</i>	Ground-ivy	SE5				3
<i>Hesperis matronalis</i>	Dame's Rocket	SE5				3
<i>Hypericum perforatum</i>	Common St. John's-wort	SE5				5
<i>Impatiens capensis</i>	Spotted Jewelweed	S5			4	-3
<i>Juglans nigra</i>	Black Walnut	S4?			5	3
<i>Leucanthemum vulgare</i>	Oxeye Daisy	SE5				5
<i>Lotus corniculatus</i>	Garden Bird's-foot Trefoil	SE5				3
<i>Lycopus americanus</i>	American Water-horehound	S5			4	-5
<i>Lysimachia arvensis</i>	Scarlet Pimpernel	SE4				3
<i>Lysimachia ciliata</i>	Fringed Yellow Loosestrife	S5			4	-3
<i>Lythrum salicaria</i>	Purple Loosestrife	SE5				-5
<i>Parthenocissus vitacea</i>	Thicket Creeper	S5			4	3
<i>Pastinaca sativa</i>	Wild Parsnip	SE5				5
<i>Plantago lanceolata</i>	English Plantain	SE5				3
<i>Populus deltoides</i>	Eastern Cottonwood	S5			4	0
<i>Populus tremuloides</i>	Trembling Aspen	S5			2	0
<i>Potentilla argentea</i>	Silvery Cinquefoil	SE5				3
<i>Prunus serotina</i>	Black Cherry	S5			3	3
<i>Ranunculus acris</i>	Common Buttercup	SE5				0
<i>Rhamnus cathartica</i>	European Buckthorn	SE5				0
<i>Rhus typhina</i>	Staghorn Sumac	S5			1	3
<i>Ribes americanum</i>	American Black Currant	S5			4	-3
<i>Robinia pseudoacacia</i>	Black Locust	SE5				3
<i>Rubus idaeus ssp. strigosus</i>	North American Red Raspberry	S5			2	3
<i>Rubus odoratus</i>	Purple-flowering Raspberry	S5			3	5
<i>Salix bebbiana</i>	Bebb's Willow	S5			4	-3
<i>Salix sp.</i>	Exotic Tree Willow	SE				
<i>Silene vulgaris</i>	Bladder Champion	SE5				5
<i>Solanum dulcamara</i>	Bittersweet Nightshade	SE5				0
<i>Solidago canadensis</i>	Canada Goldenrod	S5			1	3
<i>Solidago gigantea</i>	Giant Goldenrod	S5			4	-3
<i>Solidago rugosa</i>	Rough-stemmed Goldenrod	S5			4	0
<i>Spiraea alba</i>	White Meadowsweet	S5			3	-3

VASCULAR PLANT LIST - Agreement 4023-E-0009 (GWP 4111-22-00) Preliminary Design, Highway 401 Widening and Structures Rehabilitation / Replacement

Plant species observed in June 2024

SCIENTIFIC NAME	COMMON NAME	PROVINCIAL STATUS (S-RANK)	SARO STATUS	COSEWIC STATUS	COEFFICIENT OF CONSERVATISM	COEFFICIENT OF WETNESS
<i>Symphotrichum lanceolatum</i>	Paniced Aster	S5			3	-3
<i>Symphotrichum novae-angliae</i>	New England Aster	S5			2	-3
<i>Symphotrichum ontarionis</i>	Ontario Aster	S5			6	0
<i>Tragopogon pratensis</i>	Meadow Goatsbeard	SE5				5
<i>Trifolium pratense</i>	Red Clover	SE5				3
<i>Tussilago farfara</i>	Coltsfoot	SE5				3
<i>Ulmus americana</i>	White Elm	S5			3	-3
<i>Vicia cracca</i>	Tufted Vetch	SE5				5
<i>Vincetoxicum rossicum</i>	European Swallowwort	SE5				5
<i>Vitis riparia</i>	Riverbank Grape	S5			0	0
ANGIOSPERMS (MONOCOTS)						
<i>Anthoxanthum hirtum</i>	Hairy Sweetgrass	S4			5	-3
<i>Arisaema triphyllum</i>	Jack-in-the-pulpit	S5			5	-3
<i>Asparagus officinalis</i>	Garden Asparagus	SE5				3
<i>Bromus inermis</i>	Smooth Brome	SE5				5
<i>Carex aurea</i>	Golden Sedge	S5			4	-3
<i>Carex flava</i>	Yellow Sedge	S5			5	-5
<i>Carex granularis</i>	Limestone Meadow Sedge	S5			3	-3
<i>Carex hystericina</i>	Porcupine Sedge	S5			5	-5
<i>Carex pellita</i>	Woolly Sedge	S5			2	-5
<i>Carex stipata</i>	Awl-fruited Sedge	S5			3	-5
<i>Dactylis glomerata</i>	Orchard Grass	SE5				3
<i>Eleocharis sp.</i>	Spikerush Species					
<i>Glyceria striata</i>	Fowl Mannagrass	S5			3	-5
<i>Iris versicolor</i>	Harlequin Blue Flag	S5			5	-5
<i>Juncus articulatus</i>	Jointed Rush	S5			5	-5
<i>Juncus dudleyi</i>	Dudley's Rush	S5			1	-3
<i>Lolium arundinaceum</i>	Tall Ryegrass	SE5				3
<i>Phalaris arundinacea</i>	Reed Canarygrass	S5			0	-3
<i>Poa pratensis</i>	Kentucky Bluegrass	S5			0	3
<i>Scirpus cf. atrovirens</i>	Dark-green Bulrush	S5			3	-5
<i>Scirpus pendulus</i>	Hanging Bulrush	S5			3	-5
<i>Sisyrinchium montanum</i>	Strict Blue-eyed-grass	S5			4	0
<i>Typha angustifolia</i>	Narrow-leaved Cattail	SE5				-5

**VASCULAR PLANT LIST - Agreement 4023-E-0009 (GWP 4111-22-00) Preliminary
Design, Highway 401 Widening and Structures Rehabilitation / Replacement**

Plant species observed in June 2024

SCIENTIFIC NAME	COMMON NAME	PROVINCIAL STATUS (S-RANK)	SARO STATUS	COSEWIC STATUS	COEFFICIENT OF CONSERVATISM	COEFFICIENT OF WETNESS
-----------------	-------------	----------------------------	-------------	----------------	-----------------------------	------------------------

FLORISTIC SUMMARY	TOTAL
Total Species	97
Native Species	60
Introduced (exotic) species	37
Species at Risk in Ontario (END, THR or SC)	0
Species at Risk in Canada (END, THR or SC)	0
Rare in Ontario (S1, S2 or S3)	0
Uncommon to common in Ontario (S4)	4
Common to very common in Ontario (S5)	56
Highly sensitive plant species with C value of 8, 9 or 10	0
Wetland Plant Species (-5, -4 or -3)	37

**Terrestrial Ecosystems Existing Conditions and Preliminary Impact Assessment
Report
Appendix D SAR and SOCC Assessment
February 11, 2026**

Appendix D SAR and SOCC Assessment



Appendix D: SAR and SOCC Habitat Assessment for the GWP 4111-22-00 ROW and Study Area

Species at Risk

Group	Common Name	Scientific Name	SARO Status	SARA Status	Provincial Status (S-rank)	Source of Record	Habitat Description	Habitat Assessment for the Study Area
Birds	Chimney Swift	<i>Chaetura pelagica</i>	THR	THR	S3B	OBBA	Nest in chimneys and other human made structures. Tend to stay close to water. Can nest on cave walls and in hollow trees or tree cavities in old growth forests.	Absent. suitable chimneys were not observed in the Study Area at the time of field investigations.
Birds	Eastern Meadowlark	<i>Sturnella magna</i>	THR	THR	S4B	NHIC, OBBA	Generally, prefers grassy pastures, meadows and hayfields. Nests are always on the ground and usually hidden in or under grass clumps (COSEWIC 2011).	Absent. Large grasslands and hayfields are absent from the Study Area.
Reptiles	Blanding's Turtle	<i>Emydoidea blandingii</i>	THR	END	S3	ORAA	Inhabits shallow lakes, ponds and wetlands with clean water and mucky bottoms. Hibernates in the soft bottoms of water bodies.	Potential. May use Butlers Creek, unnamed tributary, and associated wetlands in the Study Area as a movement corridor and nest in exposed areas, including gravel highway shoulders, and other disturbed areas.
Reptiles	Gray Ratsnake (Frontenac Axis)	<i>Pantherophis spiloides</i>	THR	THR	S3	COSSARO, 2020	Requires a variety of habitats including deciduous forest and woodlands, wetlands, rocky outcrops, and agricultural fields. Hibernates in natural or artificial underground features that extend below the frost line including bedrock crevices and rocky slopes.	Potential. Contiguous and fragmented deciduous forests are present in the Study Area. Hibernacula features of exposed limestone bedrock embankments were also present within the Highway 401 ROW.
Mammals	Eastern Small-footed Myotis	<i>Myotis leibii</i>	END	Not listed	S2S3	AMO	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius; Maternal Roosts: primarily under loose rocks on exposed rock outcrops, crevices and cliffs, and occasionally in buildings, under bridges and highway overpasses and under tree bark.	Potential. Forest communities in the Study Area may provide suitable roosting habitat for bats. Suitable roost trees were observed adjacent to Highway 401, east of Brockville.



Group	Common Name	Scientific Name	SARO Status	SARA Status	Provincial Status (S-rank)	Source of Record	Habitat Description	Habitat Assessment for the Study Area
Mammals	Little Brown Myotis	<i>Myotis lucifugus</i>	END	END	S4	AMO	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius; Maternal Roosts: Often associated with buildings (attics, barns etc.). Occasionally found in trees (25-44 cm DBH) (COSEWIC 2013).	Potential. Forest communities in the Study Area may provide suitable roosting habitat for bats. Suitable roost trees were observed adjacent to Highway 401, east of Brockville.
Mammals	Northern Myotis	<i>Myotis septentrionalis</i>	END	END	S3?	AMO	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius; Maternal Roosts: Often associated with cavities of large diameter trees (25-44 cm DBH). Occasionally found in structures (attics, barns etc.) (COSEWIC 2013).	Potential. Forest communities in the Study Area may provide suitable roosting habitat for bats. Suitable roost trees were observed adjacent to Highway 401, east of Brockville.
Mammals	Tri-colored Bat	<i>Perimyotis subflavus</i>	END	END	S3?	AMO	The Tri-colored Bat roosts in colonies in tree cavities in a wide variety of deciduous and coniferous forest stands. It is strongly associated with forest watercourses and streamside vegetation (COSEWIC 2013).	Potential. Forest communities in the Study Area may provide suitable roosting habitat for bats. Suitable roost trees were observed adjacent to Highway 401, east of Brockville.
Mammals	Hoary Bat	<i>Lasiurus cinereus</i>	-	END (under COSEWIC)	S4	AMO	Summer habitat for this migratory bat species includes mostly treed areas for roosting. They roost alone or with pups in foliage in trees and shrubs and prefer to be at the edge of the tree crown for predatory protection. It will occupy both coniferous and deciduous forests of any age.	Potential. Forest communities in the Study Area may provide suitable roosting habitat for bats.
Mammals	Eastern Red Bat	<i>Lasiurus borealis</i>	-	END	S4	AMO	Summer habitat for this migratory bat species includes mostly treed areas for roosting. They roost alone or with pups in foliage in trees and shrubs and prefer to be at the edge of the tree crown for predatory protection. It will occupy both coniferous and deciduous forests of any age.	Potential. Forest communities in the Study Area may provide suitable roosting habitat for bats.



Group	Common Name	Scientific Name	SARO Status	SARA Status	Provincial Status (S-rank)	Source of Record	Habitat Description	Habitat Assessment for the Study Area
Mammals	Silver-haired Bat	<i>Lasionycteris noctivagans</i>	-	END	S4	AMO	Roosting occurs under bark and in tree cavities where large decaying coniferous or deciduous trees are present. Females with maternity roosts will be in small groups. They may also occasionally roost in or on buildings, especially during migration.	Potential. Forest communities in the Study Area may provide suitable roosting habitat for bats.
Plants	Butternut	<i>Juglans cinerea</i>	END	END	S2	NHIC	Usually grows alone or in small groups in deciduous forests. Prefers moist, well-drained soil and is often found along streams. Also found on well-drained gravel sites, does not do well in shade, and often grows in sunny openings and near forest edges.	Potential. Although this species was not observed at time of field investigations, individuals may be present.
Plants	Black Ash	<i>Fraxinus nigra</i>	END	THR	S4	COSSARO, 2020	Considered a wetland species found in swamps, floodplains and fens.	Potential. Although this species was not observed at time of field investigations, individuals may be present.

Species of Conservation Concern

Group	Common Name	Scientific Name	SARO Status	SARA Status	Provincial Status (S-rank)	Source of Record	Habitat Description	Habitat Assessment for the Study Area
Birds	Barn Swallow	<i>Hirundo rustica</i>	SC	THR	S4B	OBBA	The Barn Swallow commonly nests on walls or ledges of barns, bridges, culverts, or other manufactured structures (Cadman et al. 2007).	Potential. Suitable breeding habitat is present within the Study Area in the form of rural buildings adjacent to meadow and riparian habitats. No Barn Swallow nests were observed on any structures within the Study Area.
Birds	Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	-	-	S3B	OBBA	Colonies, often with dozens of nests in a single tree, on an island or in a treed swamp. Associated with wetland habitat including streams, rivers, lakes, ponds, lagoons, reservoirs, and wet agricultural fields.	Absent. no stick nest colonies were observed during field investigations.



Group	Common Name	Scientific Name	SARO Status	SARA Status	Provincial Status (S-rank)	Source of Record	Habitat Description	Habitat Assessment for the Study Area
Birds	Eastern Wood-Pewee	<i>Contopus virens</i>	SC	SC	S4B	OBBA	Associated with deciduous and mixed forests. Nests within mature and intermediate age stands and prefers areas with little understory vegetation as well as forest clearings and edges (Cadman et. al. 2007).	Potential. Forest communities in the Study Area may provide suitable nesting habitat for Eastern Wood-Pewee. Eastern Wood-Pewee was not observed during field investigations.
Birds	Tufted Titmouse	<i>Baeolophus bicolor</i>	-	-	S3B	OBBA	Inhabits deciduous and mixed forests as well as gardens, parks, and shrublands. Nests in natural cavities in trees that previously occur; nest boxes, or old woodpecker cavities.	Potential. Deciduous forests with tree cavities are present in the Study Area. Tufted Titmouse was not observed during field investigations.
Birds	Wood Thrush	<i>Hylocichla mustelina</i>	SC	THR	S4B	OBBA	Nests mainly in second growth and mature deciduous and mixed forests with saplings and well-developed understory layers. Prefers large forest mosaics but may also nest in small forest fragments (Cadman et. al. 2007).	Potential. Forest communities in the Study Area may provide suitable nesting habitat for Wood Thrush. Wood Thrush was not observed during field investigations.
Insects	Monarch Butterfly	<i>Danaus plexippus</i>	SC	SC	S4B, S2N	OBA	Are present primarily wherever milkweed plants and other wildflowers grow; abandoned farmland, along roadsides, and other open meadow spaces (COSEWIC 2016).	Confirmed Present. Common Milkweed plants and a Monarch individual were observed within the Study Area.
Reptiles	Eastern Ribbonsnake	<i>Thamnophis sauritus septentrionalis</i>	SC	-	S4	ORAA	Semi-aquatic and occurs close to water (wetlands, shorelines of lakes and rivers) in forested habitat.	Potential. May be present near shorelines of watercourses and near wetlands.



Group	Common Name	Scientific Name	SARO Status	SARA Status	Provincial Status (S-rank)	Source of Record	Habitat Description	Habitat Assessment for the Study Area
Reptiles	Eastern Milksnake	<i>Lampropeltis triangulum</i>	NAR	SC	S3	ORAA	Generally, occur in rural areas, where it is most frequently reported in and around buildings, especially old structures. It is also found in a wide variety of habitats, from prairies, pastures, and hayfields to rocky hillsides and a wide variety of forest types. They must also be in proximity of water, and suitable locations for basking and egg-laying (COSEWIC 2014).	Potential. Potential snake hibernacula in the form of bedrock embankments are present in the Study Area, along with a mosaic of habitats (i.e., forest, meadow, agricultural lands). Species may occur within the work zone as they are naturally attracted to roadways for thermoregulation.
Reptiles	Snapping Turtle	<i>Chelydra serpentina</i>	SC	SC	S3	ORAA	Generally, inhabits shallow waters where individuals can hide under the soft mud and leaf litter. Nesting sites usually occur on gravelly or sandy areas along streams. Snapping Turtles often take advantage of human-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits (COSEWIC 2018).	Potential. May use the watercourses and drainage ditches in the Study Area as a movement corridor and nest in exposed areas, including gravel highway shoulders, and other disturbed areas.
Reptiles	Midland Painted Turtle	<i>Chrysemys picta marginata</i>	NAR	SC	S5	ORAA	Inhabit waterbodies, such as ponds, marshes, lakes, and slow-moving creeks, that have a soft bottom and provide abundant basking sites and aquatic vegetation. These turtles often bask on shorelines or on logs and rocks that protrude from the water. The Midland Painted Turtle hibernates on the bottom of waterbodies (Ontario Nature 2018).	Potential. May use the watercourses and drainage ditches in the Study Area as a movement corridor and nest in exposed areas, including gravel highway shoulders, and other disturbed areas.

